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THE UNIVERSITY OF ALBERTA

Analysis of Some Canadian Marketing Boards' Recent Quota Transfer Policies

by

Louise Cecilia Pouliot

(C)

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE

OF Master of Science

IN

Agricultural Economics

Department of Rural Economy

EDMONTON, ALBERTA

Fall, 1986

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FACULTY OF GRADUATE STUDIES AND RESEARCH

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research, for acceptance, a thesis entitled Analysis of Some Canadian Marketing Boards' Recent Quota Transfer Policies submitted by Louise Cecilia Pouliot in partial fulfilment of the requirements for the degree of Master of Science in Agricultural Economics.

Michele Veeman

Supervisor

R. L. Lewis

R.A. Sandilands

Date September 29, 1986.

Abstract

Marketing boards are an important part of the Canadian agricultural marketing system. Many boards have strong economic and political powers and the exercise of these has led to disagreement regarding their actions and performance. Most people accept the fact that marketing boards are long established and that they will remain. So economists and politicians have to find ways of improving boards and thus make them more efficient.

This study is an analysis of the quota transfer system used by the major Canadian supply management marketing boards. The quota transfer policies applied by boards regulating dairy producers and broiler producers are documented. Attempts are then made to quantify some of the costs that might be associated with restrictions on transfer of quota between broiler producers by comparing cost data and quota values for different provinces. Major improvements might come from reform in this sector; for example by letting quota be traded more freely.

Acknowledgements

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I dedicate this thesis to my husband, Ron.

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I. Introduction

A. Background of problem

Marketing boards have been a part of Canada's agriculture for many years. They are a result of producer's initiative and are generally governed and administered by a board of elected agricultural producers. Usually, we only view as marketing boards these agencies which are compulsory. There are actually 135 marketing boards covering most Canadian agricultural products.[1] This number includes provincial and national marketing boards. There are four national supply management boards which regulate the production or marketing of eggs, chicken, turkey and milk.[2] There are many provincial marketing boards. Their powers, duties, and degree of activity vary greatly from province to province.

The two main objectives of marketing boards are to enhance producers' revenues or returns and to reduce "boom and bust" cycles from the markets for agricultural products. For some boards these objectives are pursued by supply management. Supply management is the way in which quantity produced is restricted in order to obtain more stable and higher prices and revenue. The incentive to restrict entry and supplies is based on the feature that the demand for

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[1] Canada Department of Agriculture, *Marketing Board Statistics*, Ottawa: Canada Department of Agriculture, Economics Branch, 1983-84, p.10.

[2] Tobacco and potato production will probably be under supply management in the near future.

many food commodities is price inelastic. Restrictions on quantity supplied to the market are achieved through a quota system. It is well known that these systems have costs. In addition there is a transfer of income from consumer to producer. Producers get more money for their commodities, but this arises from higher costs to consumers. The costs of new producers who later enter the program are increased because of the capitalization of program benefits into quota value. Quota prices increased very rapidly in the last decade. Because of this, it is difficult and costly for a new farmer to join the regulated industry; it is also difficult to expand, so this kind of situation encourages some inefficiencies. Only the very well established producers may be able to acquire quota. Generally economists compare competitive equilibrium with supply management equilibrium in order to measure these costs.[3]

This thesis involves an attempt to identify and to measure some of the costs that may be associated with the quota transfer system. Economists point out that there are added costs of supply management if quotas are not allowed to be freely transfered. Some of the reasons for this are that limitations on transfer may prevent available capacity from being efficiently used and may prevent economies of size or location from being achieved. Such restrictions on quota systems also lead to more administrative costs. They

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[3]Veeman, M.M., "Social Cost of Supply-Restricting Marketing Boards," *Canadian Journal of Agricultural Economics*, (1982), Vol.30 (1):21-36.

place the board in the unenviable position of having to decide which producers may expand, and by what amount, as quota becomes available. Administrators may argue that it is easier for them to attempt to administratively control or limit quota prices if the board is fully in charge of the quota system.

How does one measure the effects of the limitations on quota transfer? Some work has been done on this issue by different writers. These studies which serve as the basis for the development of the methodology used in this study, are outlined in Chapter 2.

B. Organization of the study

In Chapter 2, there are three sub-sections. The first gives a brief history of the development of supply management. The second gives a review of supply management literature concentrating on the social cost of supply management in general, as well as the social cost of quota transfer methods. The third section gives a review of possible quota transfer methods.

Documentation of the different quota allocation and transfer methods used by some supply management boards is given in Chapter 3. Chapter 4 explores economic effects of quota transfer methods, and Chapter 5 gives a summary as well as conclusions and recommendations for policy and further study.

II. Theoretical Review of Supply Management Boards

A. Development of Canadian Marketing Boards

Producers in British Columbia were the first in Canada to look upon producer-organized marketing as a solution to the problem of low income and fluctuating prices.[4] The development of marketing boards has also been affected by the development of co-operative marketing. In many cases boards have been formed after co-operative marketing ventures. British Columbia producers thought that with the introduction of marketing boards they could obtain greater control over their industry. The British Columbia Produce Marketing Act of 1927 was the first attempt by Canadian producers to set up a compulsory marketing organization.[5] However, in 1931, the Supreme Court found this act to be "ultra vires" of the provincial government[6] because it affected interprovincial trade which is within federal jurisdiction and thus not an area in which Provinces may normally legislate.

The 1934 National Farm Product Marketing Act created a board which was given extensive powers over the marketing of regulated products and was empowered to delegate these powers to local boards.[7] Twenty-two marketing plans had been

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[4] Poetschke, L.E. and W.M. Mackenzie, *The Development of Producer Marketing Boards In Canadian Agriculture*, Department of Political Economy, University of Alberta, 1957, p.21.
[5] *Ibid.*
[6] Veeman, M.M. and R.M.A. Loyns, *Agricultural Marketing Boards*, Cambridge: Ballinger, 1979, p.61.
[7] *Ibid.*, p.62.

approved by this board by late 1935 when the Act was repealed in 1937.[9] At that time the Privy Council declared the Act to be "ultra vires" of the federal government.[9] The subsequent development of legislation under which Canadian marketing boards have been established and operated has been affected by and reflects the dual federal-provincial jurisdiction over marketing in Canada.[10]

In 1949 the Agricultural Products Marketing Act was passed:

> "Under this act, the federal government can authorize boards established under provincial legislation to use their regulatory powers when selling agricultural produce across provincial or national boundaries and to raise funds through producer levies."[11]

There are a great variety of provincial boards, and the powers, duties, and degree of activity of these boards vary from province to province. Table II.1 is an enunciation of the provincial legislation providing for the enabling legislation and supervisory bodies of those boards. In 1983-84 there were 135 marketing boards.[12] They cover most agricultural products. There are marketing boards with strong market powers in the dairy, broiler, turkey and egg sectors in most of the provinces. These are the most powerful boards and the more controversial ones. Supply management is practiced for these commodities. This was done

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[9] *Ibid.*, p.62.
[9] Poetschke (1957), *op. cit.*, p.4.
[10] Veeman and Loyns (1979), *op. cit.*, p.61.
[11] *Ibid.*, p.62.
[12] Canada Department of Agriculture (1983-84), *op. cit.*, p.10.

Table II.1 YEAR OF ESTABLISHMENT OF AGRICULTURAL PRODUCTS ACTS

Area	Act
Alberta	Marketing of Agricultural Products Act 1955
British Columbia	Natural Products Marketing Act 1936
Manitoba	Natural Products Marketing Act 1939
New Brunswick	Natural Products Control Act 1937
Nova Scotia	Natural Products Marketing Act 1946
Ontario	Farm Products Control Act 1937
Prince Edward Island	Agricultural Products Marketing Act 1940
Quebec	Agricultural Marketing Act 1956
Saskatchewan	Natural Products Marketing Act 1945

Source: Poetschke, L.E. and W.M. Mackenzie, *The Development of Producer Marketing Boards In Canadian Agriculture*, Department of Political Economy, University of Alberta, 1957, pp.10-18.

initially on a provincial basis which led to inter-provincial trade disputes.'[13] Largely because of this, the Farm Product Marketing Agencies Act was passed in 1972.'[14] This legislation established the supervisory National Farm Products Marketing Council and provided for the introduction of national marketing plans for various commodities.'[15]

Information about marketing boards for dairy and poultry products is given below. Although the next chapter outlines a review of quota allocation and transfer methods for fluid milk most of the study concentrates on poultry products especially broiler chicken.

Marketing Boards for Poultry Products

Poultry products include the commodities of eggs, chicken and turkey. Before 1966, only a few provinces had poultry product boards, but now all provinces except Newfoundland have specific boards covering poultry products. In 1973, the Canadian Egg Marketing Agency was created, with the Canadian Turkey Marketing Agency following shortly in 1974. The Canadian Chicken Marketing Agency was established later in 1978. These boards were created as a means of addressing the problem of unstable price and low income conditions.

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[13] Veeman and Loyns (1979), *op. cit.*, p.63.
[14] Veeman and Loyns (1979), *op. cit.*, p.63.
[15] *Ibid.*

Poultry boards and those for dairy products have very extensive controls. Poultry producers are not (as are dairy producers) directly subsidized by government. But there are, none the less, significant transfers from the consumer to the producer of these commodities.

> "The Food Prices Review Board, consumer groups, and others have argued that the poultry boards in Canada have contributed to higher consumer prices, to developing inefficiencies in production and distribution, and to eliminating trade potential in their products. It also been argued that the high degree of self-regulation is itself contrary to consumers and public interest."[1]

B. Review of Literature.

Theoretical Basis of Supply Management Boards.

It is well known that domestic demand for most agricultural products is very price inelastic. A change in price has a less than proportional effect on the quantity demanded. Agricultural products are also characterized by relatively inelastic supply functions in the short-run. These characteristics of demand and supply inelasticity are likely the main reasons for unstable prices in agriculture while the low income elasticity of demand coupled with rapid technological advances has contributed to sectoral decline for agriculture in general. Farmers have argued for different mechanisms to ensure more stable prices and a higher revenue. Supply management is one of the mechanisms

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[1] Veeman and Loyns (1979), *op. cit.*, p.68.

utilized in agriculture in an attempt to achieve these ends. Supply management programs involve restrictions on the quantity to be supplied. The immediate short-run effects of these programs are higher price levels for producers and consumers, higher revenues for producers, and higher expenditures for consumers (see Figure II.1).

One can identify potential economic costs and losses from supply management by the boards which exercise strong market power. These costs include:

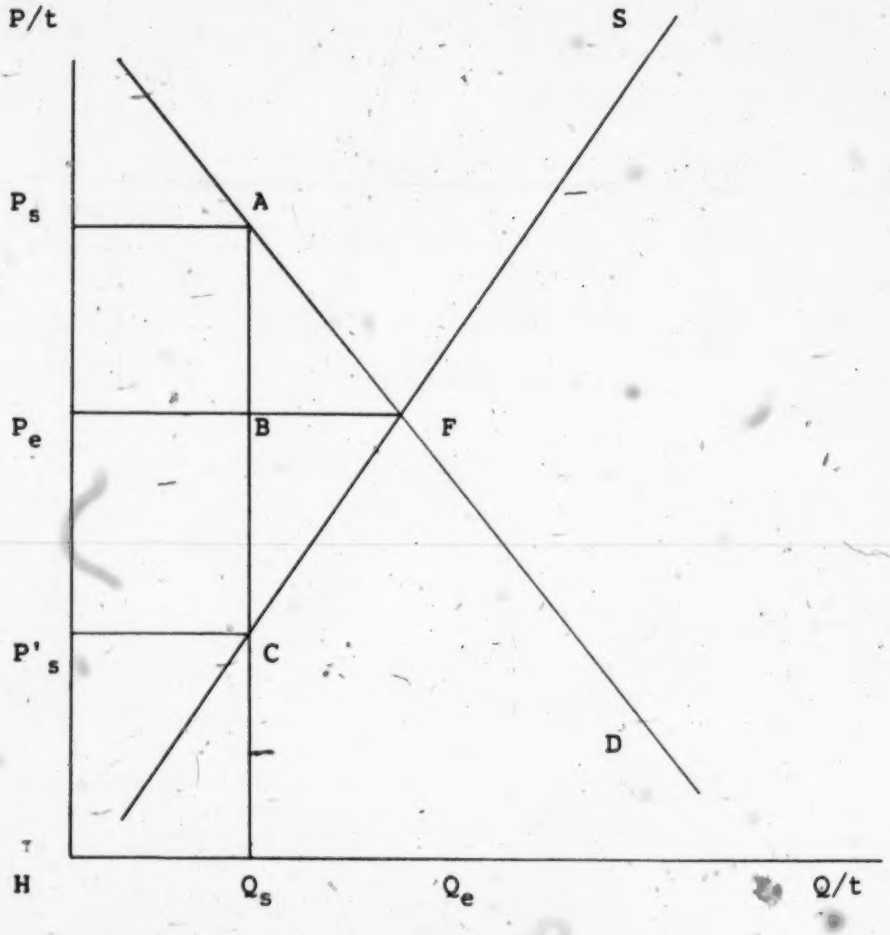
- loss in allocative efficiency (area AFC in Figure II.1)
- x-inefficiency losses
- losses which can be due to restrictions on quota transfer (contributing to area xcdy in figure II.3)
- losses due to lags in technological progress (contributing to area xcdy in Figure II.3)

In addition, there are income distribution effects and there may be benefits from producers' receipt of more stable prices and incomes.

It is the objective of this thesis to concentrate on one category of the above effects. Specifically the thesis is directed at the costs attributed to the restrictions on quota transfers. It has been argued that if quotas are freely negotiable the social cost of exertion of monopoly power is very small (see Figure II.2). If quotas are not allowed to be traded the social cost may rise considerably (see Figure II.3). The increased costs, represented as an upward supply shift in Figure II.3, have more than one

Figure II.1

SUPPLY MANAGEMENT COMPARED WITH COMPETITIVE EQUILIBRIUM



Source: Veeman, M.M., "Social Cost of Supply-Restricting Marketing Boards," *Canadian Journal of Agricultural Economics*, 1982, vol.30 (1) p.25.

Figure II.2

SOCIAL COST OF MONOPOLY POWER

IF QUOTAS ARE NEGOTIABLE

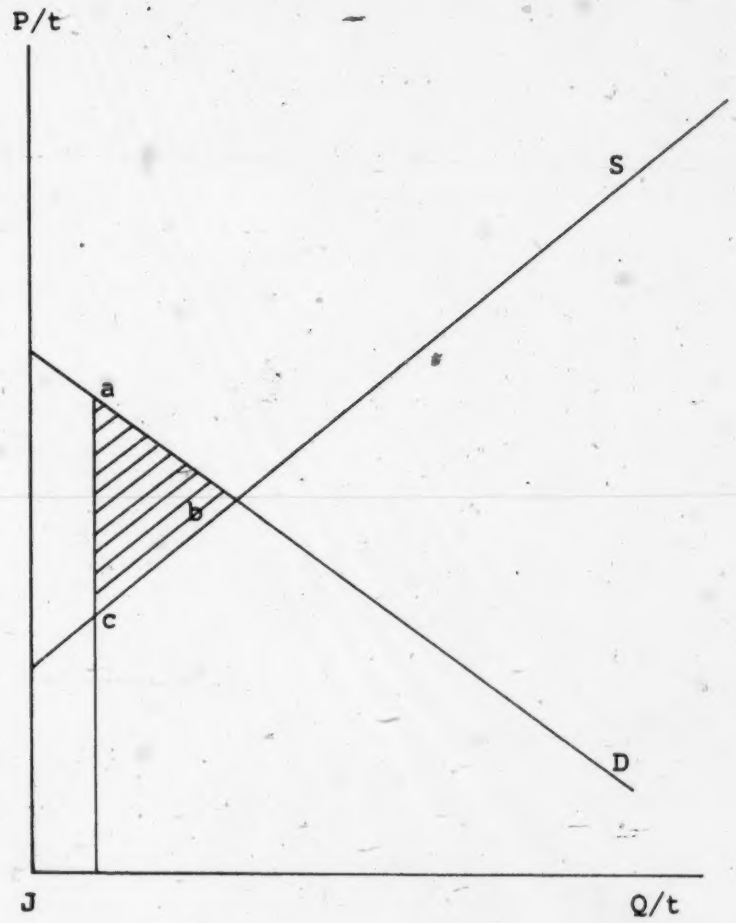
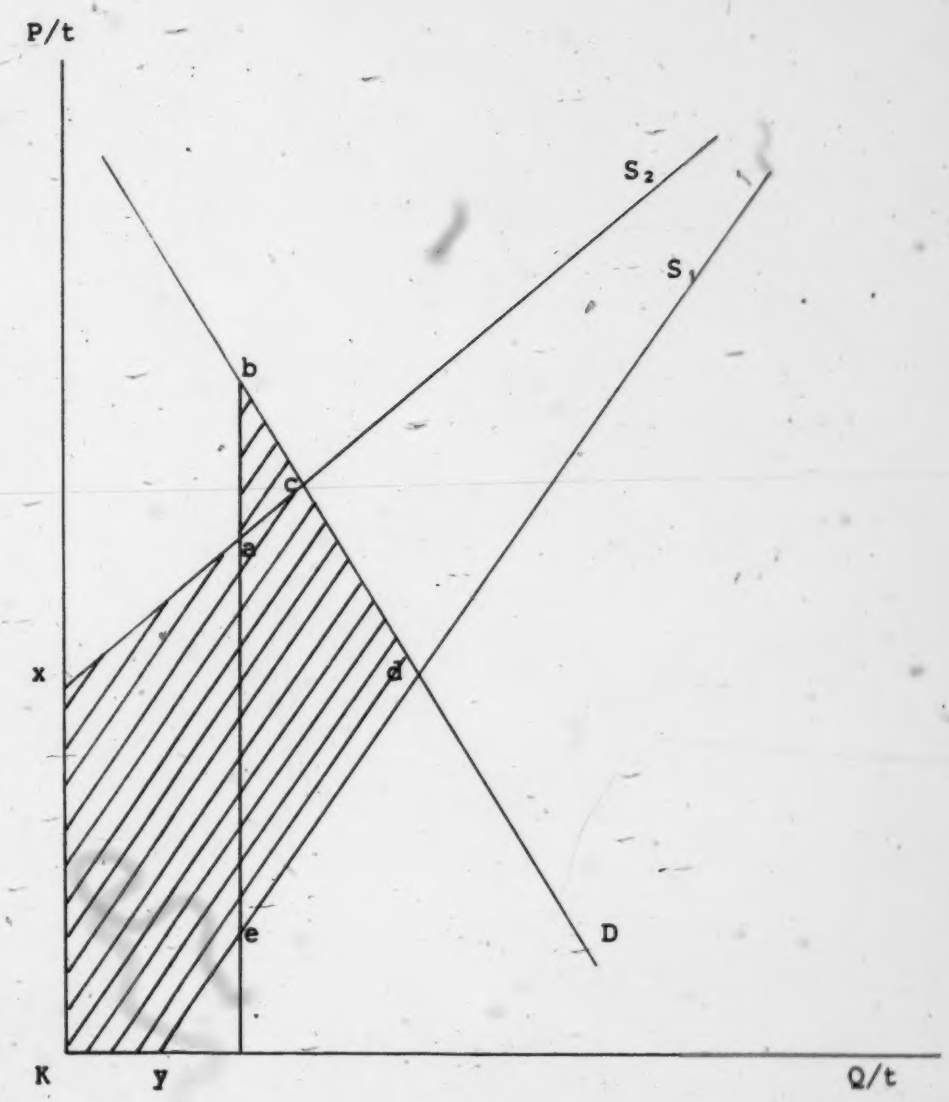


Figure II.3

POTENTIAL SOCIAL COST OF MONOPOLY POWER

A NON-NEGOTIABLE QUOTA SYSTEM



source. First, costs may increase if quotas are applied in a way which restricts the use of one input; this may cause the quota system to lead to inefficient input combinations. Second, costs may increase if output is not shared among existing and "would-be" producers or locations so as achieve minimum costs. Further, technical advance may be retarded. The larger are the differences between quota-restricted levels and optimal sizes, and the larger any potential economies of scale are, the greater will be the increase in costs.

Assessment of the Quota Transfer Effects

The effects of supply management are usually assessed by comparing supply management with competitive equilibrium. Samuelson cited that:

> "at least from the time of the physiocrats and Adam Smith there has never been absent from the main body of economic literature the feeling that in some sense perfect competition represented an optimal solution."[11]

Further, "Harberger seems to have been the first to use the concept of economic surplus to quantify the welfare effects of monopolies."[12] Quota transfer effects have consequences on three groups of people, the consumers, the producers and the taxpayers. A commonly used indicator of the welfare effects on consumers is the consumer surplus.

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[11]Currie, J.M., Murphy, J.A. and Schmitz A., "The Concept of Economic Surplus and Its Use in Economic Analysis," *The Economic Journal*, Vol. (81) no.324, Dec.71, p.771.
[12] *Ibid.*, p.771.

The consumer surplus as defined by Dupuit in 1844 is "the difference between the sacrifice which the purchaser would be willing to make in order to get a good and the purchase price he has in exchange."[19]

> "Hicks redefined the concept of consumers' surplus using an ordinal system of indifference curves. He defined consumers' surplus as the amount of income variation that would leave the consumer on his original indifference curve following the introduction of the commodity at a particular price."[20]

Under certain conditions consumer surplus can be measured as the area below a demand curve and above the price line. An indicator of the welfare effects on producers is the producer surplus. The producer surplus as defined by Marshall is "the excess of the gross receipts which a producer gets for any of his commodities over their prime cost-that is, over that extra cost which he incurs in order to produce those things and which he could have escaped if he had not produced them."[21] The producer surplus can be measured as the area above the product supply curve and below the price line. In the absence of above normal profits it can be viewed as the equivalent of economic rent. Ricardo first defined economic rent as "the payment to a factor of production over and above the minimum necessary to induce to do its work."[22]

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[19] *Ibid.*, p.742.
[20] *Ibid.*, p.745.
[21] *Ibid.*, p.754.
[22] *Ibid.*, p.758.

In recent years there has been a growing interest in the use of these concepts of economic surplus to analyse the welfare effects of monopoly. In conventional analysis the effects of quotas are estimated by comparing free market equilibrium with the situation which applies under quotas.

It has been argued that if quotas are freely negotiable the social cost of monopoly power is very small (being represented by the shaded area in Figure II.2). If quotas are not allowed to be traded the social cost may rise considerably (see Figure II.3). Two popular approaches used in estimating the effects of supply management have been: "to use the value of quotas as a measure of rent and doing price and cost comparisons between two different areas."[23]

This chapter now turns to a review of literature on the social costs of supply management which may suggest how quota transfer effects may be assessed.

A Study of Broilers and Eggs by Arcus (1981).

This report by Arcus is one of a series commissioned jointly by the Economic Council's Regulation Reference and the Institute for Research on Public Policy.[24] It examines the economic impact of regulation in the broiler and egg sectors in Canada. The production and marketing of these commodities are controlled by provincial and national

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[23] Schmitz, A., "Supply Management in Canadian Agriculture: An Assesment of the Economic Effects," *Canadian Journal of Agricultural Economics*, (1983), Vol.31 (2): 136-151.
[24] Arcus, P.L., *"Broiler and Eggs,"* Economic Council of Canada: Ottawa, (1981), pp.1-103.

marketing agencies. The major impacts are those occurring on producers and consumers, but impacts occurring in the supply, processing, retailing and distributing sectors are also noted.[23] Impacts on producers are positive. Those on consumers are negative, and derive mainly from higher prices to consumers. Since a good indicator of the amount of benefits accruing to producers is the quota value, Arcus used these values in order to be able to estimate the cost of broiler and egg regulation. He stated that:

> "Quota values are a comprehensive measurement of the benefits accruing to producer of any regulated commodity. In general, where quota is traded in the market place the value which is established reflects the marginal valuation of the amount of quota involved."[24]

In 1980, British Columbia, Ontario, Quebec and New Bruswick operated systems of free trade of quota for the broiler chicken commodity; these provinces were estimated to have had a total valuation of quota of $394 millions (89% of the Canadian total).

During the same time the provinces of Alberta, Saskatchewan, Manitoba and Nova Scotia had policies which tied quota to assets; Arcus estimated for these provinces a total valuation of $47 millions (11% of the Canadian total). Arcus noted that quota values are generally higher in the provinces where quota is traded freely. He estimated the cost of regulation in the broiler sector to be about $77 millions per year. This was estimated on the basis of higher

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[23] Arcus (1981), *op. cit.*, p.43.
[24] *Ibid.*

prices for the estimated quota values in broiler chicken production. These higher prices to consumers would generate benefits to producers of broilers in Canada of an average of about $30,000 per producer nation wide.

A Note on the Effects of Non-transferable Quotas on Supply Functions by Alston (1981).

This article is a theoretical review of the effects of non-transferable quotas on the supply functions. Alston pointed out that non-transferable quotas result in increased costs which lead to upward shifts of the supply function.

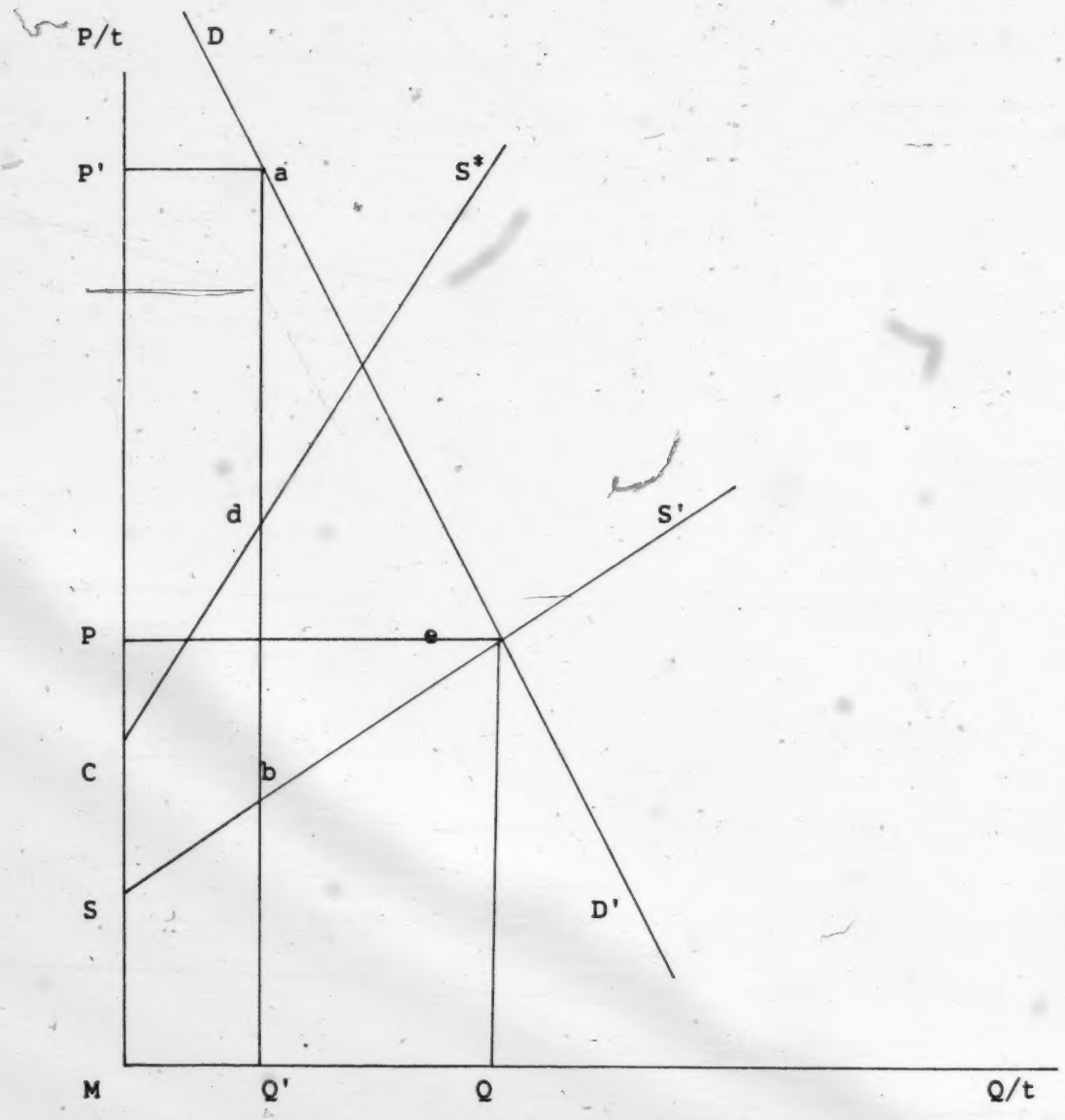
Alston distinguished two kind of quota systems: closed (non-transferable) quota systems and open (transferable) quota systems.[27] Because quota is not allocated to the most efficient producers in the appropriate quantities and because quotas retard technical change, the net social cost of the closed quota system is greater than the open quota system by the amount which is represented (in Figure II.4) by area SbdC. Thus, Alston pointed out, if quotas are not allocated to the most economically efficient producers in appropriate quantities so that each producer can fully capture any available economies of size or scale, the quota supply function will be to the left of the no-quota supply function. Optimal sizes will differ between producers, and the larger are the differences between quota levels and

---

[27] Alston, J.M., "Supply Effects of Non-Transferable Quotas," *Review of Marketing and Agricultural Economics*, (1981), Vol.49 (3): 189-97.

Figure II.4

SOCIAL COST OF CLOSED QUOTA SYSTEM



Source:Alston, J.M., "Supply Effects of Non-Transferable Quotas," *Review of Marketing and Agricultural Economics*, (1981), Vol.49 (3): 190.

optimal sizes, and the larger are the potential economies of scale, the greater will be the upward cost and supply curve shift.[28]

A study of The Egg Marketing Board by Borcherding and Dorosh (1981).

Borcherding and Dorosh (1981) measured the regulatory costs of the British Columbia Egg Marketing Board. They first argued that important economies of scale are lost due to the fact that egg farmers in British Columbia are restricted to weekly quotas of three hundred cases of eggs.[29] A cost comparison of British Columbia and Washington State[30] farms was done. Borcherding and Dorosh found that in Washington, farms are much larger and that larger farms dominate the market in terms of output.[31] They also evaluated the difference in the average level of costs between egg production in Washington State and British Columbia to be 3.6 cents per dozen or $1.8 millions per year in total for British Columbia. This is represented as area (αajK) in Figure II.5.[32] This represents the cost savings that would accompany "freeing up" of the sale of quota between producers; that—is, it is an estimate of the increase in costs due to the loss of economies of scale

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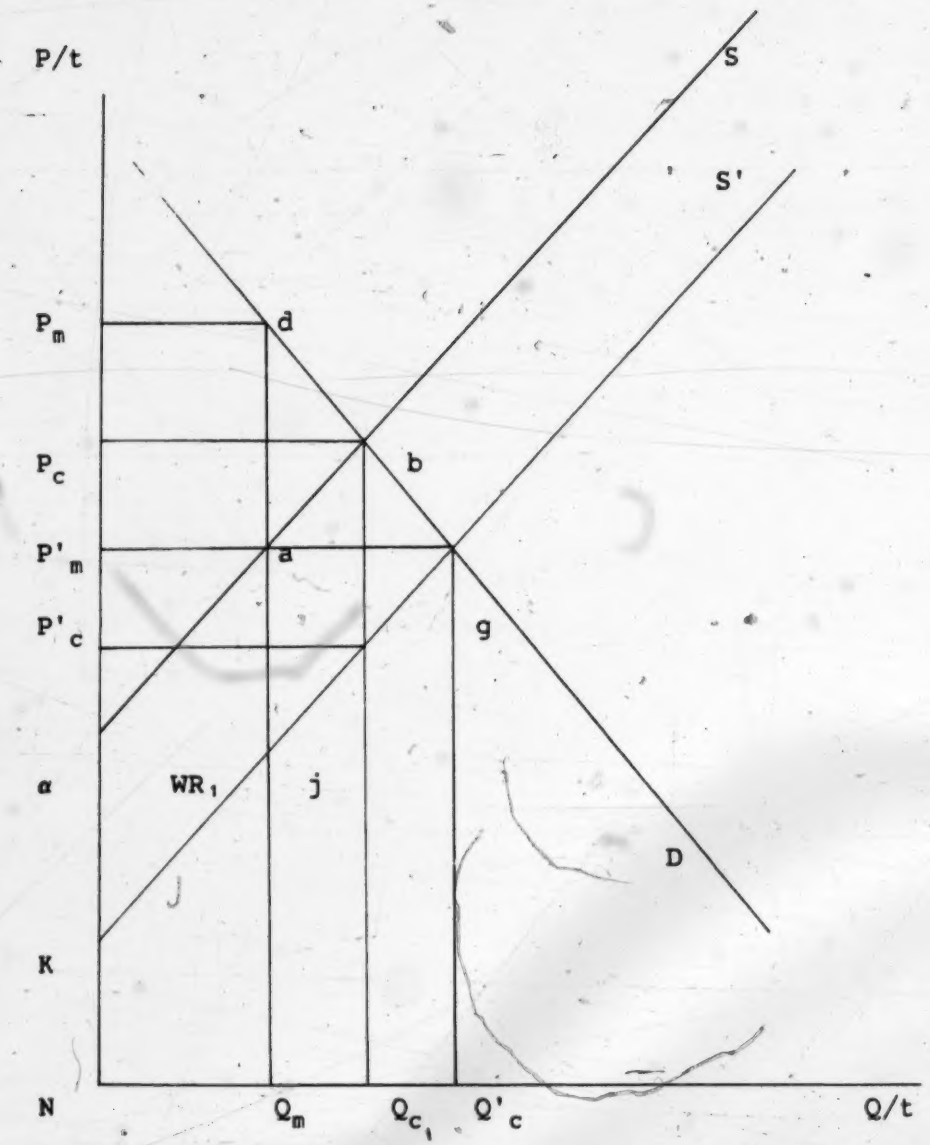
[28] *Ibid.*, pp.190-91.
[29] Borcherding, T. and G,W. Dorosh, *The Egg Marketing Board: A Case Study of Monopoly and Its Social Cost*, Vancouver: The Frazer Institute, 1981, p.38.
[30] Washington State has no restriction on either entry or size of firms.
[31] Borcherding and Dorosh (1981), *op.cit.*, p.39.
[32] Borcherding and Dorosh (1981), *op. cit.*, see note 87 p.81.

Figure II.5

DEREGULATION OF CANADIAN EGG INDUSTRY



Source: Borcherding, T. and G.W. Dorosh, *The Egg Marketing Board: A Case Study of Monopoly and Its Social Cost*, Vancouver: The Fraser Institute , 1981, p.38.

imposed by the way in which the quota system is administered.

> "This follows since competition, along with a deregulation of firm sizes, would lead to a downward shift in the supply function from S to S_1. This indicates that more output can be produced at a given set of prices because of superior internal organization of the industry."[33]

In addition to these quota transfer effects, Borcherding and Dorosh estimated total losses for consumers and total net gain for producers.[34]

A Study of Social Costs of Supply-Restricting Marketing Boards by Veeman (1982).

Veeman (1982) estimated the social cost of supply-restricting marketing boards for Canadian chicken, egg and turkey commodities (poultry products). She demonstrated that, depending on the assumptions involved, cost estimates which were quite different in magnitude would be achieved. Two sets of aggregate annual short-run transfers and efficiency losses are presented. The first set is based on a comparison of United and Canadian prices.[35] Different values of the elasticity of supply and demand were assumed. Equilibrium prices and quantities were estimated and used[36] to estimate (referring to Figure II.1) the loss

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[33] *Ibid.*, p.42.
[34] Borcherding and Dorosh (1981), *op.cit.*, p.51.
[35] The procedure taken here was to estimate an approximation of the non-intervention equilibrium price based on the relationship of Canadian producer level prices to U.S. producer level prices prior to the introduction of provincial and federal supply control programs.
[36] These were derived by assuming and solving for linear

of allocative efficiency (area AFC), consumer cost (the area bounded by $P_eP_sAB+ABF$) and producer gain (the area bounded by P_e P_s AB-BCF).

Veeman's article also involves estimation of potential longer-run effects that might arise due to increased costs due to x-inefficiency, lags in technological progress, and restrictions on quota transfers. These may result in a parallel or pivotal shift of S_1 to S'_2 due to the increase in cost structures of the firms in the industry (See Figures II.6 and II.7).

Major conclusions arising from this article are that in the short-run the losses of allocative efficiency are minor and transfer effects are major. In the long-run potential efficiency losses may be major. It is also pointed out that quantitative estimates of the impact of supply control programs are sensitive to the method of estimation.

A Study of Consequences of Deregulation in the Victorian Egg Industry by Alston (1985).

This one of the few studies which attempts to quantify the impacts of limitations on quota transfers. Alston compared the situation for egg production and marketing in two Australian states, one in which quotas are freely transferable (New South Wales) and another in which quotas are not transferable (Victoria).[3'] He assumed that otherwise

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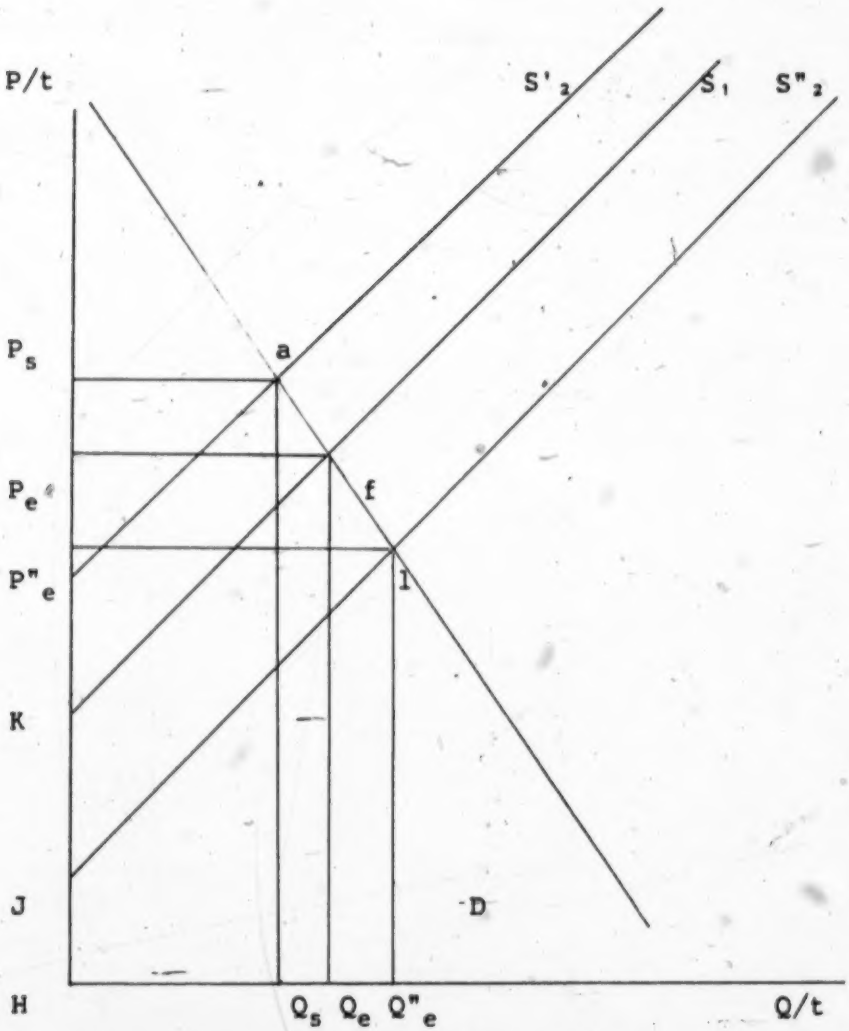
3'(cont'd) demand and supply functions.

3' Alston, J. M., "Consequences of Deregulation in the Victorian Egg Industry," Unpublished Paper Submitted to the *Review of Marketing and Agricultural Economics*, (1985), in

Figure II.6

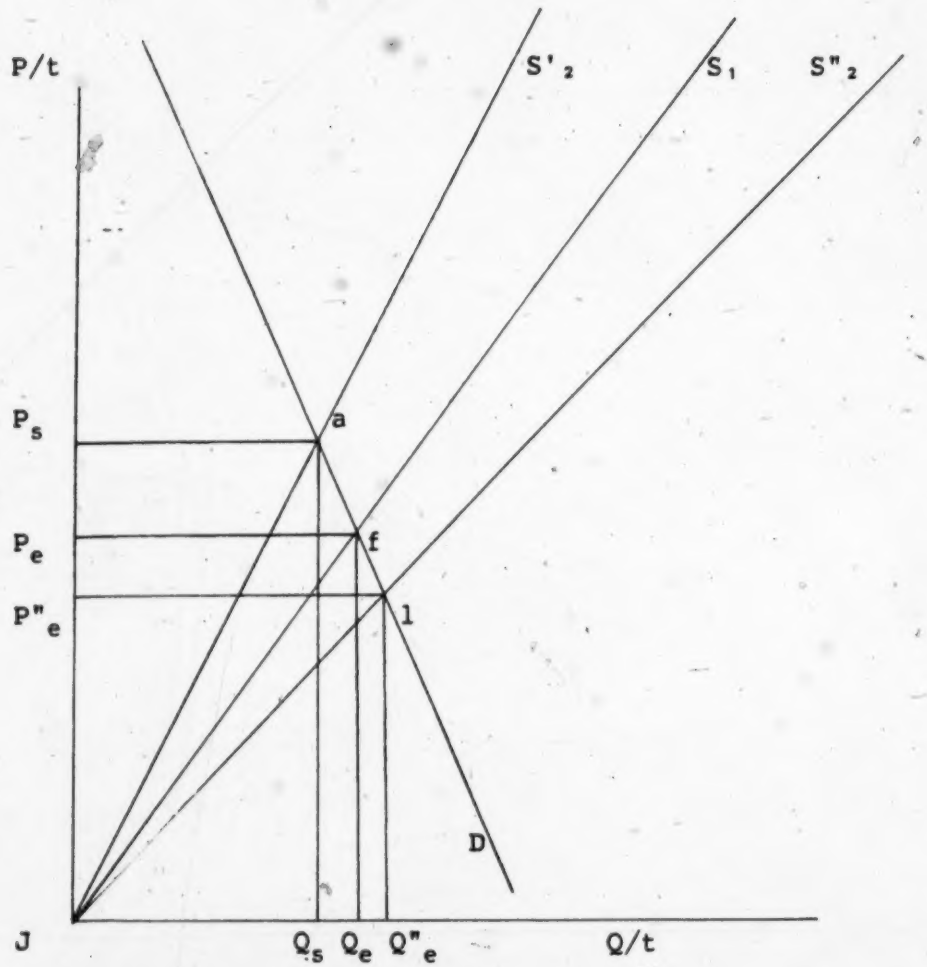
PARALLEL SHIFT OF THE SUPPLY FUNCTION



Source: Veeman, M.M., "Social Cost of Supply-Restricting Marketing Boards," *Canadian Journal of Agricultural Economics*, 1982, vol.30 (1) p.27.

Figure II.7

PIVOTAL SHIFT OF THE SUPPLY FUNCTION



Source: Veeman, M.M., "Social Cost of Supply-Restricting Marketing Boards," *Canadian Journal of Agricultural Economics*, 1982, vol.30 (1) p.27.

(i.e. except for the form of regulation) costs in Victoria would correspond to those in New South Wales. There are higher costs resulting in an upward supply shift for the egg sector in Victoria due to limits on quota transfers (eg. not achieving economies of size) and to restrictions on the use of inputs due to the use of hen quotas rather than egg quotas. Alston estimated the increase in costs that are due to the limitations on quota transfer and to the supply restriction program in general. He estimated an extra cost of 13 cents per dozen eggs attributed to the limitations on quota transfer.

C. Review of Different Quota Transfer Methods

Supply management boards are mainly used to achieve more stable and higher producer prices. Their regulation varies among provinces. Many facets of the economic effects of a supply management marketing board are likely to be determined by the board's quota policy, for example, by the techniques it uses to allocate quotas to individual producers and the methods by which quota transfers are permitted among producers. The next chapter is devoted to outlining the results of the investigation into the regulations affecting all the provincial poultry and milk marketing boards in Canada. To set the stage for this, the final section of this chapter reviews some of the different

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3''(cont'd) Press.

possible quota transfer methods a board can use.

Fully Controlled Quota System

This system is characterized by the fact that the board exercises complete control over the allocation and transfer of all quota.[30] This is a very restrictive system. If a producer decides to sell his quota he has to sell it to the board and the board decides to whom any quota that becomes available will be alloted. The price is also determined by the board. Another characteristic of this system is that the ability of individual producers to acquire additional quota is at the discretion of the board.

Quota Attached to Assets

Under this system, the quota is tied to specific farm assets such as the land and buildings and is transferable only to purchasers who acquire the physical assets to which it has been allocated.[31] Otherwise the transfer is limited to the case of within-family transfer or to the case in which the on-going operation is transfered. Tying the quota to the physical assets of the farm restricts the mobility of the quota and the production process. It applies in Alberta, Manitoba, Nova Scotia, Ontario, Prince Edward Island, and Saskatchewan for the broiler chicken commodity. This system also enables some boards to pretend that quota doesn't have

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[30] Lane, S.H. and M.A. Mcgregor, *Quotas and Quota Values*, University of Guelph, 1979, p.89.
[31] *Ibid.*, p.92.

a value. It will reduce the value to potential purchasers, and will obscure the value which becomes identified with higher values for other assets.

Limited Negotiability Quota Systems

Under this system only with restrictions can quota be sold separately from other assets. The prices at which quotas will trade can be determined by various factors which affect their demand and/or supply.[**] Even if quota is permitted to be transfered, most of the time quota is not allowed to be traded between different types or classes of the product (i.e. from broiler chicken to roaster chicken production). Some provinces have a tax on transfers, for example, 20% of the amount transferred reverts to the board whenever there is a transfer. Often there is also a system of transfer fees though these are generally relatively small, for example, $100 per transfer.

Frequently quota can be sold separately from assets, but cannot be traded between regulated areas. The province of Quebec operates this system for broiler chicken.

In some of the provinces there is a minimum or maximum level on quota sizes. These may prevent farmers from obtaining an optimal size in the interest of maintaining larger numbers of producers.

Completely Negotiable Quota System

[**] *Ibid.*, p.94.

Under this system quota can be sold separately from other assets, and can be traded between areas in the province. British Columbia is the only province operating with this system for broiler chicken.

D. Summary Regarding the Effects of Quota Transfer Methods

In summary Arcus (1981) concluded that regulation in the broiler chicken and egg sectors in Canada has a positive impact on producers and a negative impact on consumers. The cost of regulation was estimated at about $77 millions per year. Alston (1981) pointed out that if quotas are not allowed to be traded, this engenders additional costs and an upward shift of the supply function due to non-achievement of economies of size and location. Borcherding and Dorosh provided estimates of the costs of quota negotiability restrictions in British Columbia at $1.8 millions per year causing an upward shift of the supply function. Veeman (1982) concluded that increased costs arise due to restrictions on quota transfer. Those additional costs may result in a parallel or pivotal shift of the supply function. In his latest paper Alston (1985) provided some estimates of the increased costs due to limitations on quota transfer in Australia of 13 cents per dozen eggs.

III. Review of Different Possible Quota Allocation and Transfer Methods

This chapter outlines the actual quota allocation and transfer methods which are used by various Canadian provincial supply management marketing boards. There are many possible procedures a board can use for quota allocation and quota transfer is subject to varying types of regulation. These mechanisms generally reflect a compromise between economic effects, administration ease, and political acceptability.

This chapter is divided into two sections; the first presents information on fluid milk and the second is concerned with broiler chicken. These sections outline the procedures of quota allocation, quota transfer and quota price establishment used by the various provincial boards. Most of the information comes from the marketing board's regulations and this information is summarized into two tables.

A. Fluid Milk

Alberta

In 1933, a milk board started operations in Alberta regulating the production of fluid and industrial milk.[1]

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[1] Dawson, Dau and Associates, *Management of Quotas in Alberta*, Part. III, Report Under Contract to the Agricultural Product Marketing Council, 1983, p.227.

Details of the system are shown in Table III.1. There is neither a minimum or maximum amount of quota an individual producer can hold. The board's policy on new quota allocation is that in the case of market expansion, the new quota is divided so that one-half is made available to new entrants and the other half to existing producers. Moreover new producers are offered the quota in a priority list which is based on first date of application.

All quota transfers must be approved by the Board, and a period of at least 2 years between the time any quota was alloted and a subsequent transfer is required. It is also noted in the regulation that there is a minimum of 100 litres (i.e. 100 litres per day) which can be transferred; no restriction on the maximum quantity is specified.

The board operates a voluntary quota exchange system; the following lists the procedures for this:

1. "The seller delivers notification in writing to the Board of the price and amount of quota he is offering for sale,
2. the Dairy Board notifies all producers in the sellers' plant area that quota is available for sale,
3. an interested producer submits in writing to the board the amount of quota he is offering to purchase,
4. if offered prices are below the seller's price the board contacts the seller for further instruction. No quota is transfered, and
5. if the offered quota is fully subscribed at stated price, successful bidders receive quota in proportion to their desired amounts relative to the amount offered for transfer."[42]

It was possible to rent quotas in the early 1970's, but this system is now discontinued.

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[42] *Ibid.*, p.233.

British Columbia.

The British Columbia Milk Board was created in 1956. Since that time producers whose production is over a specified minimum must acquire a quota. The minimum quota is 50 litres per day and the maximum may not exceed 1% of the provincial quota.

There is a Graduated Entry Program which specifies that under the graduated entry provisions, a new entrant may acquire quota after shipping milk for a six month qualifying period and then building quota over the next 3 years.[43]

Quota is the legal property of the board. The Board does not recognize any value on fluid milk quota. Quota can be transferred between the designated regions of dairy production when board approval is previously obtained. The minimum which can be transferred at one time is 50 litres at one time, and the maximum is 1% of the provincial quota.[44]

Manitoba.

The Manitoba Milk Producers' Marketing Board was formed in 1974. Since then producers whose production is over a specified minimum level require a quota. This minimum is 220 litres of Total Allowable Production (T.A.P.) for one individual producer, but there is no maximum quota level which one producer can hold. The regulations for this board state that provisions shall be made by the Manitoba Board to allow new producers to enter into the production of the

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[43] *Ibid.*, p.223.
[44] *Ibid.*, p.223.

regulated product "without upsetting the fair and equitable treatment of all registered producers."[45]

> "Regulations are administered to assist free transfer between producers while eliminating the capitalization of quota values within transactions involving production rights."[46]

There is a transfer assessment equal to 20% of the amount transferred for any cases except when the transfer occurs between family members or the transfer involves a complete dairy unit (including land and buildings).[47]

New Brunswick.

As in the other provinces, there is a New Brunswick Milk Marketing Plan which regulates the production of fluid milk as well as industrial milk. This plan specifies that quotas are property of the Board. There is a graduated entry program for new producers and existing producers are required to maintain supply.

Regulation of quota transfer specifies that fluid milk quotas or parts of these are only transferable between and among licensed producers within a pool area.

> "All quota transfer must be direct between the buyer and seller. Where the Board has reasons to believe that a third party has obtained financial benefit as a result of the transfer, the quota may be sold by auction."[48]

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[45]Government of Manitoba, *Manitoba Regulation (242/74)*, Manitoba Natural Products Marketing Act, p.626.
[46] Dawson, Dau and Associates, Part. III (1983), *op. cit.*, pp. 247-48.
[47] *Ibid.*, p.253.
[48]Canadian Federation of Agriculture, *Quotas*, Ottawa, 1979, p.93.

Newfoundland

Fluid milk production in Newfoundland is regulated by the Newfoundland Milk Marketing Scheme, 1983.[48] The regulation specifies that no person shall engage in the production of milk in Newfoundland unless he is the holder of a valid licence issued by the board. Licenses issued by the board can not be transferred. The license has to be return to the Board when a producer ceases production.

Nova Scotia

Fluid milk in Nova Scotia is regulated by a milk marketing board. There is market value for fluid quotas. It is reported that quotas have traded fairly freely in the larger markets.[49]

Ontario

The Ontario Milk Board was established in 1965 under the Provincial Milk Act. There is no maximum nor is there a minimum on the quota amount one producer can hold.

A graduated entry program was established in 1968. This program enables industrial milk producers who had operated for at least one year to receive milk quota, in five annual instalments.

Having decided that a negotiable system of free market trade in quota was in the best long term interest of the

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[48]Government of Newfoundland, *Newfoundland Regulation (72/83)*, Newfoundland Marketing Scheme, p.217.
[49]Canadian Federation of Agriculture (1979), *op. cit.*, p.95.

dairy industry, the "Quota Exchange Method" was put into effect in 1980.[51] In Southern Ontario, all sales and purchases of fluid quota must be made through the quota exchange except where these involve a family transfer or an on-going operation transfer (involving sales of complete facilities).

All quota sales are subject to a 15% transfer assessment (quota entitlement tax) except for family transfers. Ten litres of fluid quota is the minimum amount of quota which can be sold or transfered.

Prince Edward Island

Fluid milk in Prince Edward Island is regulated by the Prince Edward Island Milk Act,1974.[52] There is a system of graduated entry to fluid milk production. Fluid quota is the property of the Commission, and is not transferable between producers except for family transfer and for on-going operation transfer.

Quebec.

The precursers of the Federation began operation in 1970 as two separate organizations (le plan conjoint des producteurs de lait industriel du Quebec, le plan conjoint des producteurs de lait du Quebec) empowered to issue fluid and industrial milk quota. By 1980, a single federation

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[51]Dawson, Dau and Associates, Part. III (1983), *op. cit.*, p.266.

[52]Government of Prince Edward Island, *Prince Edward Island Milk Act (1974).*

emerged under "By-laws" intended to integrate the industry within a single organization.[53]

New producers or those who wish to begin dairy production, are free to purchase quota at public sales. They must own a minimum amount of quota equivalent to 1750 lbs of butterfat, before they can start milk production.

Quota is the property of the Board. The federation withholds, i.e. taxes 10% of fluid milk quota offered for auction sale. A producer who wishes to transfer quota must offer his quota for sale through the Federation via public auction. Auctions are held by the secretary of the syndicate of producers in each of the zones controlled by the federation. The representative must:

1. "Hold the sale at the date on time specified based and offers submitted by producers wishing to sell quota,
2. Sell to the highest and last bidder for the quantity which the bidder indicates at the time of sale and,
3. Not offer for sale another quota or part of quota until the entire quantity that a producer may transfer has been sold."[54]

Saskatchewan.

The Milk Board in Saskatchewan started operations in 1935 under provincial legislation.

> "The primary objective of the Board is to assure availability of an adequate supply of good quality milk for human consumption at reasonable price."[55]

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[53]Dawson, Dau and Associates, Part. III (1983), *op. cit.*, p.276.
[54] *Ibid.*, p.284.
[55] *Ibid.*, p.237.

In order to produce, producers must have a quota from the board. There is no minimum nor is there a maximum on the amount of quota one individual producer can hold. Quota is the property of the Board and is tied to assets but family transfers and transfer of on-going operations are the only transfers which are allowed by the board. The present system of quota regulation is designed to eliminate apparent quota values.

Table III.1 FLUID MILK QUOTA ALLOCATION PRACTICES APPLIED BY BOARDS

Province	Alta	B.C.	Man	N.B.	N.F.	N.S.	Ont	P.E.I.	Que	Sask
Quota Units.(1)	Lt/Day	Lt/Day	Lt/Day	Lt/Day	-----	-----	Lt/Day	Lt/Day	Lbs/Day	Lt/Day
Maximum Quota.(2)	No	1% of Prov. Quota	5 Millions Lbs. of R.P.(3)	-----	-----	-----	No	-----	No	No
Minimum Quota.(4)	No	50 Lt/Day	220 Litres of T.A.P.(5)	-----	-----	-----	No	-----	No	No
Grad. Entry Program.(6)	Yes	Yes	Yes	Yes	-----	Yes	Yes	Yes	Yes	Yes

Sources:
- Canadian Federation of Agriculture, *Quotas*, Ottawa, 1979, pp. 233-324.
- Dawson, Dau and Associates, *Management of Quotas in Alberta*, Part III, Report Under Contract to the Agricultural Product Marketing Council, Alberta Agriculture, 1983, pp.220-288.
- Government of Alberta, *Dairy Control Board Regulation (1979)*.
- Government of Manitoba, *Manitoba Regulation (242/74)*, Manitoba Natural Products Marketing Act.
- Government of Newfoundland, *Newfoundland Regulation (72/83)*, Newfoundland Milk Marketing Scheme, p.217.
- Government of Prince Edward Island, *Prince Edward Island Milk Act (1974)*.

Notes Regarding Table III.1

1. This indicates whether the quota is related to production input or output of the commodity. Lt/Day indicates litres per day. Lbs/day indicates pounds per day.

2. This is the maximum quota one individual producer or partnership can hold.

3. R.P.= Regulated Product.

4. This is the minimum quota one individual producer or partnership must hold in order to be subject to the board's regulations.

5. T.A.P. = Total Allowable Production.

6. Regulation concerning quota available for new entrants to the industry.

Table III.2 FLUID MILK QUOTA TRANSFER PRACTICES APPLIED BY BOARDS

Province	Alta	B.C.	Man	N.B.	N.F.	N.S.	Ont	P.E.I.	Que	Sask
Is the Quota Property of the Board.(1)	Yes	Yes	Yes	Yes	Yes	-----	Yes	Yes	Yes	Yes
Is the Quota Tied to Assets (T.) or Freely Traded(F.T.)	F.T.	F.T.	F.T.	F.T.	T.	F.T.	F.T.	T.	F.T.	T.
Are Family Transfers Provided for(2)	Yes	Yes	Yes	Yes	-----	Yes	Yes	Yes	Yes	Yes
Are On-going Operation Transfers Provided for(3)	Yes	Yes	Yes	Yes	-----	Yes	Yes	Yes	Yes	Yes

Continued...

(Cont'd) FLUID MILK QUOTA TRANSFER PRACTICES
APPLIED BY THE BOARDS

Province	Alta	B.C.	Man	N.B.	N.F.	N.S.	Ont	P.E.I.	Que	Sask
Is There a Tax On Transfer(4)	No	No	20%	-----	No	-----	15%	No	10% of Fluid	No
Existence of Flat Transfer Fees	No	No	No	-----	No	-----	No	No	No	No
Ability to Transfer Between Classes(5)	No	No	No	No	No	-----	No	No	No	No
Ability to Transfer Between Areas(6)	No	Yes	Yes	No	No	-----	Yes	No	Yes	No

Continued...

(Cont'd) FLUID MILK QUOTA TRANSFER PRACTICES
APPLIED BY THE BOARDS

Province	Alta	B.C.	Man	N.B.	N.F.	N.S.	Ont	P.E.I.	Que	Sask
Is There a Maximum on Transfers(7)	No	1% of Prov. Quota	No	-----	No	-----	Yes	No	-----	No
Minimum Level of Transfers(8)	100 Lt/day	50 Lt/day	220 Lt/day	-----	No	-----	10 Lt/day	No	No	No
Are Whole/ Partial Transfer Allowed(9)	Both	Both	Both	Both	No	-----	-----	No	Both	No
Is Quota Rental Allowed(10)	No	Yes	-----	-----	-----	-----	Yes	-----	Yes	Yes

Sources:
- Canadian Federation of Agriculture, *Quotas*, Ottawa, 1979, pp. 233-324.
- Dawson, Dau and Associates, *Management of Quotas in Alberta*, Part III, Report Under Contract to the Agricultural Product Marketing Council, Alberta Agriculture, 1983, pp.220-288.
- Government of Alberta, *Dairy Control Board Regulation (1979)*.
- Government of Manitoba, *Manitoba Regulation (242/74)*, Manitoba Natural Products Marketing Act.
- Government of Newfoundland, *Newfoundland Regulation (72/83)*, Newfoundland Milk Marketing Scheme, p.217.
- Government of Prince Edward Island, *Prince Edward Island Milk Act (1974)*.

Notes Regarding Table III.2

1. Usually it is specified in the regulation that the quota is the property of the board. For the purpose of this study it has been assumed that if the quota reverts to the board for any purpose, it is the property of the board.

2. Sometimes this kind of transfer doesn't have to be authorized by the board.

3. Usually when the farm is sold in its entirety, the transfer doesn't have to be authorized by the board.

4. This indicates if, when the quota is freely traded a certain amount of quota must revert to the board as a condition of the transfer.

5. This indicates whether the quota is permitted to transfer from one regulated class to another regulated class. For example industrial milk and fluid milk are different classes of regulated commodity.

6. Usually the province is divided into regulated areas. This row indicates whether quota is permitted to move freely from one area to another area.

Continued...

(Cont'd)*Notes Regarding Table III.2*

7. Sometimes there is a maximum quantity of quota which one producer can transfer (for example, at auction) at a time.

8. This is the minimum quantity of quota one producer can transfer. Usually it is the minimum quota a producer can hold.

9. Generally when the quota is tied to assets it has to be transferred in its entirety. If the transfer occurs through the mechanism of public auction whole or partial transfers apply.

10. Whether it is possible to rent or lease quota.

B. Broiler Chicken

A brief outline of major activities operated by the various boards is included below and at the end of the broiler chicken section quota allocation and transfer policies are summarized in Tables III.3 and III.4.

Canadian Chicken Marketing Agency

The Canadian Chicken Marketing Agency (C.C.M.A.) was established in 1978 under the National Farm Product Agencies Act.[56] The national agency's powers are related to the establishment of provincial quota allocation, regulation of interprovincial trade and to the establishment of a national cost of production formula. Quotas are established on a yearly basis. Producers' prices are established by the provincial marketing boards but the national agency sets guidelines for variations between provincial prices.

Alberta

The chicken industry in Alberta has been regulated under "The Alberta Broiler Producers' Marketing Plan" since 1966.[57] The board has the power to license and set license fees for producers, set marketing quotas, establish producers' price (the price is set on the recommendation of a pricing advisory committee), purchase and sell product, develop markets, and promote product.[58] No pricing formula

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[56] Canadian Chicken Marketing Agency, *Report'84*, Ottawa, 1984, p.2.
[57] Government of British Columbia, *Marketing Boards in Alberta*, Select Standing Committee on Agriculture, 1978, p.8.
[58] *Ibid.*, pp.8-10.

is used in Alberta, but as in British Columbia, processors are contacted by the Secretary Manager when price changes are considered. Non regular stock of frozen chicken is also considered by the board to be a good price indicator.[59]

Producers whose production is over a specified minimum level require a quota. The minimum required is 2,000 birds and the maximum quantity of quota an individual can own is 3% of the provincial quota. There is a graduated entry program which specifies that 35% of any increases in marketing quota shall be offered to new applicants.[60]

Quota is the property of the board. When the board was first established, quota was tied to the facilities. Quota is still tied to the facilities and the regulations provide that no registered producer may transfer or lease all or any part of a marketing quota, except where it involves a family transfer or an on-going operation transfer. Transfers are subject to a $100.00 fee payable to the board.[61]

The board does not officially recognize that quota has a value but it does recognize that the selling price of facilities reflects a premium attributed to the fact that quota is included in the transfer of facilities.[62]

British Columbia

Chicken production in British Columbia has been under

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[59] Interview with a board representative.
[60] Dawson, Dau and Associates, Part. III (1983), *op. cit.*, p.33.
[61] *Ibid.*, p.34.
[62] *Ibid.*, p.35.

marketing board regulation since 1962.[3] The board has the power to license and set license fees for producers, license and set license fees for processors and dealers, set production quotas, negotiate minimum and maximum producer prices and contracts. The board does not practice price pooling and does not have the legal power to set producers' price.[4] Producers' price (farm gate price) is determined by negotiation between the board and poultry processors. The following is an enumeration of some of the factors considered in price negotiation:

- level of inventory
- time of year
- prices of chicken in neighbouring provinces
- demand in competing areas
- competitive structure of other meats.[5]

One important pricing signal for broiler chicken is the level of inventory of frozen chicken.

Producers whose production is over a specified minimum level require a quota. The minimum required is 18370 kilos live weight for broiler growers per cycle and the maximum is 102875 kilos.[6] Prior to 1972, broiler quota could be transferred without facilities. In 1972, the regulations

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[3] *Ibid.*, p.17.
[4] Government of British Columbia, *Primary Agriculture in British Columbia: Broiler Production*, Select Standing Committee on Agriculture, 1977, p.12.
[5] Government of British Columbia, *Marketing Boards in British Columbia*, Select Standing Committe on Agriculture, 1977, p.75.
[6] Government of British Columbia, *British Columbia Broiler Marketing Board Regulation (184/82)*, p.226.

changed and quota was considered tied to assets. As a result, quota could only be transferred through the sale of the farm and the sale became subject to approval of the board.[17] These regulations were changed in 1977.

The present regulations, however, specify that quota is the property of the board; however, the rights of quota use are freely transferable anywhere in British Columbia except that :

1. "10% of all quota offered for transfer in the Lower Mainland must first be offered in the Interior for a period of 90 days following which expiry date it may be transferred to either Vancouver Island or in the Fraser Valley.
2. No quota offered for transfer on Vancouver Island or the Interior shall be tranferred from either such area."[18]

Production units may be leased on an annual basis with prior approval from the board , but quotas cannot be leased separately from a grower's premises. A board fee of $250.00 applies to transfers of quota or production units.[19]

Manitoba

The board for broilers in Manitoba was formed in 1969 under the Manitoba Natural Products Marketing Act.[20] The regulations provide that:

> "Any person in any year who, in the year immediately preceding that year, has marketed less than 1000 chicken broiler raised or kept by him, is exempt from registering with the producer board. The maximum quota one producer can own is 132000 pounds

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[17] S.S.C.A. (1978), *op. cit.*, p.74.
[18] Government of British Columbia (1982), *op. cit.*, p.227.
[19] Dawson, Dau and Associates, Part III (1983), *op. cit.*, p.229.
[20] *Ibid.*, p.51.

or 60000 kilograms of chicken broiler per marketing cycle."[71]

There is allocation of quotas for:

1. "Non-quota holders with adequate building space for production via ownership or lease on a long term basis.
2. non-quota holders without building space, but who are willing to make the investment at their own risk."[72]

Initially the board introduced a very restrictive quota transfer system which specified that quota could not be transferred unless the facilities were sold and that the sale was required to include buildings, equipment and the land. Later, the board reviewed its quota regulation and required that quota be still tied to facilities and equipment, but could be obtained without having to purchase the land as well. The present regulations specify that quotas are the property of the board and can not be sold or rented. It is also specified that no values should be attributed to quotas.[73] There is no specific fee attributed to quota transfer, but when a producer wants to transfer quota , by transferring facilities 20% reverts to the board.

The board supervises transfers. The regulations provide that quota may not be re-allocated directly from producer to producer but reverts to the board for

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[71]Government of Manitoba, *Manitoba Regulation (154/81)*, p.583.
[72]Dawson, Dau and Associates, Part III (1983),*op. cit*, p.52-53.
[73] *Ibid.*, p.584.

re-issue at its discretion.

New Brunswick

The New Brunswick Chicken Marketing Board was created in 1967.[74] Producers whose production is over a specified minimum level must acquire a quota. The maximum amount of quota one individual can hold is 100,000 birds.[75] The regulations provide that should quota issued be less than the marketing limit set for the year, then licenses will be allocated to persons who have applied as new producers in order of the date of their application.

Quota can be transferred without facilities being transferred. All transfers must be approved by the Board which has the power to halt a transfer for causes considered reasonable.

Newfoundland

There is no provincial regulation of broiler chicken production in Newfoundland.[76]

Nova Scotia

The Nova Scotia Chicken Marketing Board was created in 1966. Producers whose production is over a specified minimum level must acquire a quota. The maximum amount

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[74] Canadian Federation of Agriculture (1979), *op. cit.*, p.21.
[75] *Ibid.*
[76] Arcus, P.L. (1981), *op.cit.*, p.37.

of quota one individual can hold is 40,000 birds.''

Quota may normally be transferred only when the transfer includes the sale of facilities.'' The regulations provide that if quota has reverted to the board a portion may be set aside for subsequent re-issue to a new producer.

Ontario

The board for broilers began its operation in 1965. Some of the powers that are vested in the board are to determine the price that should be paid to producers, to fix and allot quota to producers and to conduct pools.'' There is actually no set formula for pricing. Each year is considered independent and the board establishes producers' prices depending on what is happening in the market place.''

Producers whose production is over a specified minimum level must acquire a quota. The minimum quota required is 3,000 birds and the maximum is 80,000 birds.''

There are no explicit provisions to provide entry to new producers. New entrants must acquire quota through the purchase of on-going production units.''

'' Canadian Federation of Agriculture (1979), *op.cit.*, p.22.
'' *Ibid.*
''Government of Ontario, *Ontario Farm Product Marketing Act, Regulation 349.*
''Interview with people representing the board.
''Dawson, Dau and Associates, Part. III (1983), *op. cit.*, p.65.
''*Ibid.*, p.65.

When the board was first established in 1965, quota was only able to be transferred to a buyer upon the sale of the registered premises. From 1968 until 1972 the regulation changed and the board permitted quota to be transferred from producer to another separately from the premises. But this was discontinued because quota started to acquire value. So, in 1976 the board came back to its original policy which specifies that a purchaser may only acquire quota by purchasing an on-going operation to which quota is attached.[43] So, quota is tied to facilities and remains at all times the property of the board.

The board does not officially recognize that quota bears a value.[44] Nonetheless the board will purchase quota from retiring producers at administered prices.

Prince Edward Island

In Prince Edward Island a producer who produces less than 500 chickens in a calendar year is exempt from the regulations.[45] The regulations also specify that the Board has the power to set the maximum quota awarded to an individual producer depending on the provincial allocation. All quota is considered to be the property of the Board although it is issued in the name of an

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[43] Lane and Mc.Gregor (1979), *op. cit.*, p.17.
[44] Dawson, Dau and Associates, Part. III (1983), *op. cit.*, p.64.
[45] Government of Prince Edward Island, *Prince Edward Island Poultry Meat Commodity Marketing Board Order no.(4-84)*, p.3.

individual and is attached to the facilities used to produce.

Quota is, therefore, not freely transferable between producers. The board's regulations state that quota shall revert to the board when the producer ceases operations and that quota shall not be sold, rented or leased.

Quebec

The Quebec Federation of Poultry Producers started in 1966 and is made up of 11 regional producer syndicates distributed in 3 areas of Quebec.[32] The board has power to set quotas and set fees for administration, publicity and special fees. To raise poultry, every poultry-farmer must hold a Federation quota for each production unit. The minimum quota required is specified in broiler house size and is 3000 squared feet; the maximum is 120,000 squared feet.[33] The Federation does not operate a graduated entry program, furthermore each producer is required to demonstrate that he is the owner or lessee of production space amounting to no less than 55% of their total quota.[34]

When the board was first established, quota was freely traded although quota transfer between areas was restricted. In January 1984, the board initiated a free

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[32] Dawson, Dau and Associates, Part. III (1983), *op. cit.*, p.71.
[33] *Ibid.*, p.78-79.
[34] *Ibid.*, p.73.

quota market through public auction in which quota may be transferred in whole or in part and without a broiler operation. There is a fee of $5.00 per 100 square meters for quota transfer. Rental of quota is permitted and was reported to be trading at prices of $.08 to $.12 per bird in 1983.[10]

Saskatchewan

The chicken board in Saskatchewan was formed in 1965. Broiler quota is issued on the basis of square footage of building space available for production.[9] The minimum quota required to be subject to the board regulation is 1,000 birds and the maximum is 40,000 birds.[11] A "Quota Waiting List" is maintained by the board. The regulations concerning this list separate producers into two groups: growers (existing producers); and non-growers (new entrants).[12]

Quota is the property of the board. In the past, quota was allowed to trade freely but since 1977 an Order in Council has required that quotas cannot be bought, sold or leased and are considered to have no value.

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[10] *Ibid.*, p.85.
[9] *Ibid.*, p.39.
[11] *Ibid.*, p.43.
[12] *Ibid.*, p.45.

Table III.3 BROILER CHICKEN QUOTA ALLOCATION PRACTICES APPLIED BY BOARDS

Province	Alta	B.C.	Man	N.B.	N.F. (1)	N.S.	Ont	P.E.I.	Que	Sask
Quota Units(2)	Sq. Ft.	Kg.	Birds	Birds	-----	Birds	Birds	Birds	Sq.Ft.	Birds
Maximum Quota.(3)	3% of Prov.Q.	102,875 Kg.	30,000 Birds	100,000 Birds	-----	40,000 Birds	80,000 Birds	-----	120,000 sq.ft.	40,000 Birds
Minimum Quota.(4)	2,000 Birds	18370 Kg.	1000 Birds	-----	-----	-----	3,000 Birds	500 Birds	3,000 Sq.ft.	1,000 Birds
Grad. Entry Program.(5)	Yes	Yes	Yes	Yes	-----	Yes	No	-----	No	Yes

Sources: - Canadian Federation of Agriculture, *Quotas*, Ottawa, 1979, pp.15-86.
- Dawson, Dau and Associates, *Management of Quota in Alberta, PartIII*, Report Under Contract to Agricultural Product Marketing Council, Alberta Agriculture, 1983, pp.17-87.
- Government of British Columbia, *British Columbia Marketing Board Regulation (184/82)*, Natural Products Marketing Act, pp.226-229.
- Government of Manitoba, *Manitoba Regulation (154/81)*, Natural Product Marketing Act, p.583-591.
- Government of Prince Edward Island, *Prince Edward Island Meat Commodity Marketing Board*, Board Order no.(4-84), pp.2-4.
- Government of Quebec, *Laws and Regulations*, September 28, 1983, 115, no.41.

Notes Regarding Table III.3

1. There is no provincial regulation of broiler production in Newfoundland.

2. Indicates whether the quota is related to inputs (square feet of broiler house) or outputs (number of birds or kilos).

3. This is the maximum quota one individual producer or partnership can hold.

4. This is the minimum one individual producer or partnership must hold according to the board regulations.

5. Regulation concerning quota available to new entrants to the industry.

Table III.4 BROILER CHICKEN QUOTA TRANSFER PRACTICES APPLIED BY BOARDS

Province	Alta	B.C.	Man	N.B.	N.F. (1)	N S	Ont	P.E.I.	Que	Sask
Is the Quota Property of the Board.(2)	Yes	Yes	Yes	Yes	-----	Yes	Yes	Yes	Yes	Yes
Is the Quota Tied to Assets(T) or Freely Traded(F T)	T.	F.T.	T.	F.T.	-----	T.	T.	T.	F.T.	T.
Are Family Transfers Provided for(3)	Yes	Yes	Yes	Yes	-----	Yes	Yes	-----	Yes	Yes
Are On-going Operation Transfers Provided for(4)	Yes	Yes	Yes	Yes	-----	Yes	Yes	-----	Yes	Yes

Continued...

(Cont'd) BROILER CHICKEN QUOTA TRANSFER PRACTICES
APPLIED BY BOARDS

Province	Alta	B C	Man	N.B.	N.F.	N.S.	Ont	P.E.I.	Que	Sask
Is There a Tax on Transfer.(5)	No	No	20%	No	-----	No	No	No	No	No
Existence of Flat Transfer Fees.(6)	$100	$250	No	No	-----	No	No	No	$5 per 100 sq.m.	No
Ability to Transfer Between Classes.(7)	No	No	No	No	-----	No	No	No	No	No
Ability to Transfer Between Areas.(8)	No	Yes	No	-----	-----	No	No	No	No	No

Continued...

(Cont'd) BROILER CHICKEN QUOTA TRANSFER PRACTICES APPLIED BY BOARDS

Province	Alta	B C	Man	N.B.	N.F.	N.S.	Ont	P.E.I.	Que	Sask
Is There a Maximum Transfer.(9)	No	102,875 kg.	No	-----	-----	No	No	No	-----	No
Minimum Level of Transfers.(10)	No	18,370 kg.	No	-----	-----	No	No	No	-----	No
Are Whole/ Partial Transfers Allowed(11)	No	Both	No	Both	-----	No	No	No	Both	No
Is Quota Rental Provided for(12)	No	Yes	No	-----	-----	No	No	No	Yes	No

Sources: - Canadian Federation of Agriculture, *Quotas*, Ottawa, 1979, pp.15-86.
- Dawson, Dau and Associates, *Management of Quota in Alberta, PartIII*, Report Under Contract to Agricultural Product Marketing Council, Alberta Agriculture, 1983, pp.17-87.
- Government of British Columbia, *British Columbia Marketing Board Regulation (184/82)*, Natural Products Marketing Act, pp.226-229.
- Government of Manitoba, *Manitoba Regulation (154/81)*, Natural Product Marketing Act, p.583-591.
- Government of Prince Edward Island, *Prince Edward Island Meat Commodity Marketing Board*, Board Order no.(4-84), pp.2-4.
- Government of Quebec, *Laws and Regulations*, September 28, 1983, 115, no.41.

Notes Regarding Table III.4

1. No provincial regulation of broiler production in Newfoundland.
2. Usually it is specified in the regulation that the quota is the property of the board. For the purpose of this study it has been assumed that if the quota reverts to the board for any purpose, it is property of the board.
3. Usually this kind of transfer does not have to be authorized by the board.
4. Usually, when the farm is entirely sold the transfer does not have to be authorized by the board.
5. When there is no specific mention about tax on transfer it is assumed that there is not any.
6. When there is no specific mention of transfer fees, it is assumed that none exist.
7. The quota can be transferred from class to class, i.e. from broiler chickens to roaster chickens.

Continued...

(Cont'd)*Notes Regarding Table III.4*

8. Usually the province is devided into regulated areas. This indicates whether the quota is permitted to move freely from one area to another.
9. Sometimes there is a maximum quantity of quota one producer can transfer at a time, i.e. at auctions.
10. This is the minimum quota level a producer can transfer; it usually represents the minimum quota that must be held by a producer.
11. Generally when the quota is tied to assets, it has to be transferred in its entirety. If the transfer occurs in the form of public auctions both methods apply.
12. Whether it is possible to rent or lease quota.

IV. An Assessment of Economic Effects of Quota Transfer Methods

Most of the studies regarding the effects of quota transfer systems relate to eggs. Alston evaluated the consequences of deregulation in the Victorian egg industry using a comparison of egg marketing in New South Wales and Victoria. Borcherding and Dorosh estimated the cost of the British Columbia Egg Marketing Board. Their estimates mainly rely on comparisons of United States (Washington) and Canadian (British Columbia) data. Not much has been written on the cost of the quota transfer system for the broiler chicken industry although Arcus gave an estimate of the total valuation of quota for provinces where quota is traded (an aggregate of $394 millions) and for provinces where quota is tied to assets ($47 millions). The task of this study is to evaluate major impacts of the broiler chicken quota transfer systems in Canada, comparing provinces with different systems of regulation. Most attention in this comparison is placed on the systems of regulation in Alberta, British Columbia, Ontario and Quebec.'' Where estimates of costs are possible, these will be reported. However, when the resources of the study are such that costs cannot be established, a qualitative assessment will be given.

The first part of this chapter consists of a comparison of data on costs for provinces in which there are different

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'' These are the four more important provinces producing broiler chicken.

quota transfer systems. At issue is whether the quota system has an impact on the achievement of any economies of size and location and the adoption of technology. The discussion is then directed to an evaluation of the social impacts of monopoly power, including any cost increases that may lead to an upward supply shift for the industry.

A. Efficiency Losses

Economies of Size Losses

The transfer of quota without facilities may lead to greater concentration of the industry in the long-term and allows the shifting of production to the most efficient production facilities.'' Having quota tied to assets does little to improve efficiency. Dawson and Dau added that:

> "in a general sense, the entire concept of tied transfer very clearly discourages efficient adjustment in an industry. Any industry made up of a relatively large number of firms is dynamic: it is in a continuous process of adjustment in response to new technology, improved management skills and relative prices of product and inputs. Tied transfer goes far toward freezing the industry at its structure at a given point in time. Adjustment is discouraged and a stagnant condition is encouraged, especially when the industry is not in a growth position."''

In an effort to try and document the possible magnitude of such effects, information about the cost structure,

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''Peat, Marwick and Partners, *Review of Quota Administration*, Ottawa: Canadian Egg Marketing Agency, 1976, p.IV-6.

''Dawson, Dau and Associates, PartI and II (1983), *op. cit.*, p.122.

maximum quota size and size distribution of Canadian broiler chicken industry is examined.

The costs of broiler chicken production include variable costs such as chick costs, labour costs, and other variable costs such as feed and veterinary supplies. Total costs of broiler production also include fixed costs which include depreciation costs and interest on investment such as land and quota investments.

Variable costs are costs which vary with the level of output in the short-run. Fixed costs include depreciation and interest foregone on investment. They are constant in the short-run but can vary in the longer-run. The Select Standing Committee on Agriculture (S.S.C.A.) formed in British Columbia in 1977 estimated that at that time the variable costs accounted for 84% of the total costs of broiler production in that province. Of the total costs, 69% were accounted by chick and feed costs, 3.5% by labour costs and 11% by other variable costs. Fixed costs accounted for 16% of the total costs. Of these fixed costs, 23% (of 16%) were depreciation costs and 34% involved the interest foregone on the goodwill investment and 43% were other fixed costs.''

Chick and feed costs have the biggest share among all the above costs. Chick and feed costs also show little unit change with additional units of production'', thus economies of scale may mostly arise from utilization of labour and

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'' S.S.C.A. (1977), *op. cit.*, p.39.
''*Ibid.*, p.44.

capital. In 1975 a Food Prices Review Board report showed decreasing costs from 15,000 to 85,000 birds per cycle in Canada;'' these cost savings were found only in capital costs.'' It would be useful to know the most efficient size for broiler chicken farms in Canada. The S.S.C.A. declared that: "100,000 birds per cycle is a feasible size of family farm in British Columbia broiler production."'** A study done in the United States concluded that the most efficient size for a family farm is 200,000 birds per cycle and for an integrated farm, 1,000,000 birds per cycle.''[1]

Maximum Quota Size

All the provinces in Canada have specified a maximum quota size for broiler chicken production. Putting a maximum on quota size is an attempt to protect family farms and to prevent concentration in the industry. The maximum quota sizes in Canada range between 30,000 to 114,000 birds per cycle (see Table IV.1).

If we consider that costs on broiler chicken farms in Canada decrease as the size of farm increases and if we conclude that this occurs up to the size of 85,000 birds per cycle, the provinces have advantages in having their maximum quota size over 85,000 birds per cycle.

'' Farms with size of more than 85,000 birds per cycle were not included in that study.
'' S.S.C.A. (1977), *op. cit.*, p.49.
'** *Ibid.*, p.72.
'[1] *Ibid.*

Table IV.1 MAXIMUM QUOTA SIZE FOR BROILER CHICKEN PRODUCTION

Province	(units of quota)
British Columbia	56,000
Alberta	114,000
Saskatchewan	40,000
Manitoba	30,000
Ontario	75,000
Quebec	100,000
New Brunswick	100,000
Nova Scotia	40,000

Source: Arcus, P.L., *"Broiler and Eggs"*, Economic Council of Canada: Ottawa, (1981), p.37.

Concentration in the Industry

Tying quota to assets might be seen as an attempt to protect family farms and to prevent concentration in the industry. However, if the quota is tied to assets, this will cause the immobility of production location, and will also cause the number and size of firms to change slowly. Otherwise quota will tend to gravitate toward larger operations.[102] If quotas are freely traded, there could be fewer operations. The adjustment process would occur more rapidly than with transfer tied to assets. If the Board has social concerns about concentration, this may lead to policies which restrict size.[103]

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[102] Dawson, Dau and Associates, Part I and II (1983), *op. cit.*, p.123.
[103] *Ibid.*, p.130.

Table IV.2 outlines the size distribution of broiler chicken farms in Alberta, British Columbia, Ontario and Quebec for selected years. Ontario is characterized by having a large concentration of its broiler chicken farms in the size range of 20,000 to 30,000 square feet per cycle. Farms tend to be larger in Quebec; there is a big concentration of farms in the size range of 50,000 or more square feet per cycle. Farms tend to be smaller in Alberta where the greatest concentration is in the size range of 10,000 to 15,000 square feet per cycle. British Columbia had the biggest concentration of its broiler chicken farms in the size range of 5,000 to 10,000 square feet per cycle. Despite the feature that Alberta has the highest allowable maximum quota size, it has many relatively small size farms compared to the other provinces. This is due to the fact that in Alberta quota transfer is tied to assets. It has been noted in Quebec that: "as quota was freely sold in the province, there has been a trend towards fewer operations with increased holding of quota."[104] Broiler chicken quotas are tied to assets in Ontario; this could be one of the reasons why Ontario is characterized by having a large concentration of its broiler chicken farms in the small range of 20,000 to 30,000 square feet per cycle. Until 1977 British Columbia was also characterized by a quota transfer system which tied quota to assets. This may explain why in 1977 this province had a high concentration of farms in the

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[104]Dawson, Dau and Associates, Part III (1983), *op. cit.*, p.81.

Table IV.2 SIZE DISTRIBUTION OF BROILER CHICKEN FARMS FOR FOUR PROVINCES, SELECTED YEARS

Sq. Ft.(000'S)	Ont. 1977[1]	Ont. 1983[2]	Ont. 1984 [3]	Que. 1980[4]	Alta. 1977[5]	Alta 1985[6]	B.C. 1977[7]
		(no.	of farms)				
0-5	32	7	10	10	1	19	1
5-10	91	52	60	125	30	13	67
10-15	105	76	76	109	34	43	9
15-20	74	81	87	79	15	21	22
20-30	138	106	105	108	19	37	29
30-40	93	98	92	72	6	18	46
40-50	22	32	27	43	4	10	15
50 and over	34	32	34	120	10	12	4
total	589	484	491	720	119	173	193

Sources:
[1]Ontario Chicken Producers Marketing Agency, *Annual Report 1977*, Ontario, 1977.
[2]Ontario Chicken Producers Marketing Agency, *Annual Report 1983*, Ontario, 1983.
[3]Ontario Chicken Producers Marketing Agency, *Anuual Report 1984*, Ontario, 1984.
[4]Quebec Department of Agriculture *Coup d'oeil sur l'agro-alimentaire au Quebec, 1979-80*. Quebec: Quebec Department of Agriculture, Economics Branch, 1981.
[5]Alberta Broiler Chicken Producers Marketing Agency, *Growers' list of Broiler Chicken in Alberta*, Alberta, 1977.
[6]Alberta Broiler Chicken Producers Marketing Agency, *Growers' list of Broiler Chicken in Alberta*, Alberta, 1985.
[7]Government of British Columbia, *Primary Agriculture in British Columbia: Broiler Production* , Select Standing Committee on Agriculture, 1977, p.19.

smallest range category (Table IV.2).

Entry to and Exit from the Industry

The quota transfer policy can also influence the ease of entry to or exit from the industry. Allowing quotas to be transferred freely facilitates entry to and exit from the industry. Less quota is likely available for sale with tied transfer because of the disincentives this alternative provides for exit.

In the remainder of this section, the possible impact on labour and capital costs of transfer restrictions is discussed since economies of scale are thought to mostly arise from these two components.

Labour Costs

A survey reported by Henson on the broiler industry for the North Atlantic region of the United States in 1973-74, indicated some economies in labour costs as the size of broiler operation was increased. Table 8 shows these findings. These are used in an attempt to assess if there may be losses in economies of size from the labour component due to limitations on quota transfers. Two provinces are compared, one where quotas are freely transferable (Quebec) and one in which quotas are tied to assets (Ontario). The total number of broiler chicken farms in Ontario and Quebec is taken from the data on the size distribution of farms in Table IV.2. The number of hours required per 1,000 birds is

given in Table IV.3. The average number of birds on farms multiplied by the number of farms gives the total number of birds in the industry. The total number of birds (in thousands) is multiplied by the number of labour hours (per 1,000 birds) to give a measure of total number of labour hours spent on all broiler chicken farms in the provinces. Expressed in terms of the average number of hours spent per thousand birds, this was 11.09 hours (see Table IV.4) for Ontario in 1983 and 9.72 hours (see Table IV.5) for Quebec in 1980. This is a difference of 1.37 hours per thousand birds. Applying the manufacturing wage rate in Ontario in July 1982 of $9.92 per hour to the additional labour hours in Ontario gives an extra labour cost of $13.604 per thousand birds due to the smaller average size which appears in large part to be due to limitations on the quota transfer system.

The S.S.C.A. evaluated in British Columbia the number of hours per thousand birds for broiler farms of different sizes. Their results are summarized in Table IV.6.

The data used in the S.S.C.A. survey were collected from 20 broiler farms in British Columbia. The procedure involved establishing three size groups and farms were then selected randomly within these size groups.'[88] The size groups were as follows: small farms with 20,000 birds per cycle of broiler quota; medium size farms with 20,000 to 40,000 birds per cycle; and large farms with more than

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'[88] S.S.C.A. (1977), *op. cit.*, p.28.

Table IV.3 HOURS OF LABOUR FOR BROILER CHICKEN FARMS IN UNITED STATES IN 1973-74

Size of Farms	Number of hours per 1,000 birds
Less than 20,000 birds	13.0
20,000 to 40,000 birds	12.6
40,000 to 70,000 birds	9.4
over 70,000 birds	6.5

Source: Henson, W.L., *The U.S. Broiler Industry: Past and Present Status, Practices, and Costs*, U.S.D.A. as reported in Dawson, Dau and Associates, 1983, *Management of Quotas in Alberta*, PartI and II, Report Under Contract to the Agricultural Products Marketing Council Alberta Agriculture, p.42.

Table IV.4 HOURS OF LABOUR ON ONTARIO BROILER CHICKEN FARMS IN 1983 BASED ON HENSON ESTIMATES

Average size of farms(Birds)	Total No. of Farms	Total No. of Birds (000's)	Hrs.per Thousand Birds	Total No. of Hours
10,000	216	2160	13	28080
30,000	204	6120	12.6	77112
55,000	32	1760	9.4	16544
70,000	32	2240	6.5	14560
Total	484	12280		136299
Average			11.09	

Derived from Tables IV.2 and IV.3.

Table IV.5 HOURS OF LABOUR ON QUEBEC BROILER CHICKEN FARMS IN 1980 BASED ON HENSON ESTIMATES

Average size of Farms(Birds)	Total No. of Farms	Total No. of Birds (000's)	Hrs.per Thousand Birds	Total No. of Hours
10,000	377	3770	13	49010
30,000	180	5400	12.6	68040
55,000	43	2365	9.4	22231
70,000	120	8400	6.5	54600
Total	720	19935		193881
Average			9.72	

Derived from Tables IV.2 and IV.3.

Table IV.6 HOURS OF LABOUR FOR THE BROILER CHICKEN FARMS IN BRITISH COLUMBIA IN 1977

Size of Farms	Number of Hours per 1,000 birds
20,000 birds and less	14.6
20,000 to 40,000 birds	12.2
40,000 and more birds	11.8

Source: Government of British Columbia, *Primary Agriculture in British Columbia: Broiler Production*, Select Standing Committee on Agriculture, 1977, p.64.

40,000 birds per cycle. Seven small farms, seven medium farms and six large farms were selected. Cost of production data were collected for 1977. The authors concluded that small and large farms were over-represented in their sample, but that this bias was corrected by weighting the overall

sample average by the percentage of the production contributed by each size group.'[66]

The information in Table IV.6 was extrapolated to Ontario and Quebec in an effort to assess the possible losses in economies of size associated with labour inputs due to limitations on the quota transfer system. Ontario and Quebec are again compared. The total number of broiler chicken farms in Ontario and Quebec was taken from the size distribution of farms in Table IV.2 and the number of hours required per 1,000 birds was taken from Table IV.6. The average number of birds on farms multiplied by the number of farms gives a measure of the total number of birds in the industry. The total number of birds (in thousands) is multiplied by the number of labour hours spent on all broiler chicken farms in the provinces. Expressed in terms of the average number of hours spent per thousand birds, this average was 12.58 hours (see Table IV.7) for Ontario in 1983 and 12.61 hours (see Table IV.8) for Quebec in 1980. This difference of .03 hours per thousand birds implies that in Ontario, only a slightly smaller number of hours of labour per 1,000 birds is used; this difference is most probably not significant. The difference between the S.S.C.A. estimates and those from Henson are probably due to the fact that the largest category considered by S.S.C.A. was 40,000 birds or more whereas the United States study looks separately at farms of 70,000 birds or more. There are

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[66] *Ibid.*, p.29.

Table IV.7 HOURS OF LABOUR ON ONTARIO BROILER CHICKEN FARMS IN 1983 BASED ON S.S.C.A. ESTIMATES

Average Size of Farms(Birds)	Total No. of Farms	Total No. of Birds (000's)	Hrs. per Thousand Birds	Total No. of Hours
20,000	216	2160	14.6	31536
20,000 to 40,000	204	6120	12.2	74664
40,000 or more	64	2560	11.8	30208
Total	484	10840		136408
Average			12.58	

Derived from Tables IV.2 and IV.6

Table IV.8 HOURS OF LABOUR ON QUEBEC BROILER CHICKEN FARMS IN 1980 BASED ON S.S.C.A. ESTIMATES

Average Size of Farms(Birds)	Total No. of Farms	Total No. of Birds (000's)	Hrs. per Thousand Birds	Total No. of Hours
10,000	377	3770	14.6	55042
30,000	180	5400	12.2	65880
40,000	163	6520	11.8	76936
Total	720	15690		197858
Average			12.61	

Derived from Tables IV.2 and IV.6.

large number of farms in Quebec in the latter category. In fact, given that the S.S.C.A. data is from a province which had extensive restrictions on quota transfer at that time, its use to infer size efficiencies in situations without regulation would not be sensible.

Capital Costs

The issue of whether unit cost savings are likely from more efficient capital utilization in larger broiler farms is now assessed. Table IV.9 indicates capital investment for broiler farms in British Columbia in 1977.

These data show us the proportional investment in quota, land and buildings. Almost 40% of the total capital was represented by quota values (goodwill). This proportion is greater on the medium and larger farms than on smaller farms.

Land value accounted for about 30% of total investment in 1977. There was no evidence of any relationship between farm size and the capital invested in land. Chicken production is not a land extensive activity. Touche and Ross determined that 6 acres is the minimum acreage generally needed for production. This is not very big but the price of land can make a substantial difference to the overall cost of production. British Columbia is the province with the highest cost per acre for land (see Table IV.10). Ontario also has a high land cost. It might be suggested that the production of broiler chicken should be more concentrated in the areas where land cost is lower. This cost may nonetheless be neutralized by transportation and marketing costs.

Building investments for British Columbia in 1977 varied from 21 to 29% of the total investment. This proportion is smaller on the medium and large farms than on

Table IV.9 CAPITAL INVESTMENTS FOR BROILER FARMS IN BRITISH COLUMBIA

	Average	Small Farm	Medium Farm	Large Farm	Top 3
	$	$	$	$	$
Total Investment per Farm	386,769	185,348	360,768	652,075	589,917
Total Investment per thousand birds	12,360	14,502	11,974	12,021	9,474
	(%)	(%)	(%)	(%)	(%)
Land	29	28	24	32	18
Building	24	29	26	21	26
Equipment	7	8	9	7	6
Machinery	2	5	3	1	3
Goodwill (Quota)	38	30	38	39	49

Source: Government of British Columbia, *Primary Agriculture in British Columbia: Broiler Production*, Select Standing Committee on Agriculture, 1977, p.66.

Table IV.10 1982 LAND VALUE

	Cost/Acre ($)	Min. Acreage	Land Cost (cents/kg.)'
Br.Columbia	6,313	6	13.55
Saskatchewan	522	6	1.59
Manitoba	298	6	1.08
Ontario	1,038	6	2.45
Quebec	421	6	1.14
N.Brunswick	318	6	.58
Nova Scotia	273	6	.56
Newfoundland	182	6	.28

'Based on eviscerated weight.
Source: Touche and Ross, *A Study to Update Provincial Cost of Production Statements For Live Chicken in Canada*, Ottawa: Canadian Egg Marketing Agency, Vol.1, 1984, Exhibit 29.
(Data on Alberta are not included since this province is not a member of the national plan for broilers).

the small farms. So, medium and large farms have more capital invested in quota and small farms have more capital invested in building. There is $4688.00 (39% x $12021.00) per thousand birds invested in quota on the larger farms and there is $4350.00 (30% x $14520.00) per thousand birds invested in quota on the smaller farms. If farms were medium or larger rather than small, there would be an additional cost of $338.00 per thousand birds attributed to quota investment. This could be one of the reasons why some boards are concerned about changing quota transfer systems. Equipment and machinery account for a small portion of the total average capital investment. Overall, 70% of the capital is invested in quota and land. It might be important

for the boards to adopt quota transfer policies which will result in low quota values. From a wider viewpoint, pricing policies which lead to lower quota values seem appropriate. It might also be important to encourage or allow more production in areas where the cost of land is not a limiting factor.

To summarize the discussion above: most boards favour a quota system that is tied to assets because it protects larger numbers of family farms and prevents concentration in the industry. Putting a maximum on quota may be seen as another way of achieving these goals. But many provinces have a maximum quota size which may result in inefficiencies in production. It is also noted that a quota system that is tied to assets causes the number and size of firms to change slowly. Freely negotiable quota systems result in fewer and larger operations. Economies of scale have been observed on larger farms and are likely to arise from the degree of utilization of labour and capital. The fact that farms are smaller in Ontario causes an extra labour cost of $13.604 (see page 69) per thousand birds. If as we have seen, much capital is unnecessarily invested in quota and land, the cost of producing broilers is further increased. Boards should consider such factors in establishing future quota transfer policies.

Issues Relating to Economies of Location

Extra-provincial trade is limited under the regulated marketing system that applies for chicken, but in some provinces it is possible to transfer quota between areas within a province. The transfer of quota between areas within a province allows the shifting of production and encourages any economies of location to be taken advantage of.

The following section gives an assessment of feed costs and locational features of the broiler chicken processors and chicken consumption between provinces in Canada. This may serve to evaluate whether there may be some losses of economies of location due to quota transfer systems.

Feed costs

Feed costs accounted for 58.50% of the total Canadian broiler chicken costs of production in 1984.[10] Table IV.11 indicates the feed conversion ratios (F.C.R.) for 1979 and 1982 from a Touche and Ross study.

In all provinces feed conversion ratios decreased between 1979 and 1982 (except Newfoundland). This means that the broiler chicken production has become more efficient between these two periods. In 1982 British Columbia was the more efficient province regarding the feed component, followed by Manitoba, Ontario and Nova Scotia. Table IV.12 indicates feed conversion ratios, feed prices and costs for

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[10] C.C.M.A. Annual Report, 1984.

Table IV.11 FEED CONVERSION RATIOS'**

Province	1979	1982
Br.Columbia	2.166	2.032
Saskatchewan	2.307	2.235
Manitoba	2.176	2.075
Ontario	2.126	2.110
Quebec	2.222	2.209
New Brunswick	2.297	2.218
Nova Scotia	2.160	2.150
Newfoundland	2.191	2.198

Source: Touche and Ross, *A Study to Update Provincial Cost of Production Statements For Live Chicken in Canada*, Ottawa: Canadian Egg Marketing Agency, Vol.1, 1984, Exhibit 13.

1982. Feed conversion ratios and feed prices are closely related to feed costs.

Ontario and Manitoba are the provinces with the lowest feed costs. This is mainly due to lower feed prices and good feed conversion efficiency. In the rest of Canada, much higher feed costs are observed, this situation being caused mainly by higher feed prices. This suggests that there may be some advantages in having more chicken production located in Manitoba and Ontario. There is a difference of 11.70 (64.66-52.96) cents per kilogram in feed cost between Quebec and Ontario (derived from Table IV.12). The fact that feed costs accounted for a large proportion of the overall costs of production makes the impact of the quota transfer system on the location of the production an important criteria for

'**Quantity of feed consumed (kg.) per quantity of meat produced (kg.).

Table IV.12 1982 FEED COST.

	F.C.R.	Feed Price (¢/kg.)	Feed Cost per Kilogram of Chicken (¢/kg.)
Br.Columbia	2.032	.3012	61.20
Saskatchewan	2.235	.2858	63.88
Manitoba	2.075	.2582	53.58
Ontario	2.110	.2510	52.96
Quebec	2.209	.2927	64.66
New Brunswick	2.218	.3073	68.16
Nova Scotia	2.150	.3029	65.12
Newfoundland	2.198	.3323	73.04

Source: Touche and Ross, *A Study to Update Provincial Cost of Production Statements For Live Chicken in Canada*, Ottawa: Canadian Egg Marketing Agency, Vol.1, 1984, Exhibit 14.

decision.

Location of Consumption of Chicken in Canada

Table IV.13 indicates the per capita consumption of chicken in Alberta, Quebec and Canada for 1978, 1979 and 1984. Quebec has a greater per capita consumption of chicken compared to Alberta. Alberta's per capita consumption of chicken is close to the national average.

Table IV.14 gives the average weekly dollar expenditure for chicken per family for selected cities in 1982.

This table shows that families in the Prairies (Manitoba, Saskatchewan and Alberta) spent less money on

Table IV.13 PER CAPITA CONSUMPTION OF CHICKEN IN ALBERTA, QUEBEC AND CANADA FOR 1978, 1979 AND 1984

	1978	1979	1984
		Kg.[1]	
Alberta[3]	16.0	17.69	17.2[2]
Quebec[4]	19.2	21.2	21.15
Canada[5]	15.97	17.64	18.20

[1]Eviscerated weight.
[2]1983 (1984 not available).

Sources:
[3]Canada Department of Agriculture, *Economic Development Prospects for the Alberta Broiler Chicken Industry to the Year 2000*, Ottawa: Canada Department of Agriculture, Regional Development Branch, March 1985, p.41
[4]Quebec Department of Agriculture, *Coup d'oeil sur l'agro-alimentaire au Quebec*, 1979-80, Quebec: Quebec Department of Agriculture, Economics Branch, 1981, p.210.
[5]Quebec Department of Agriculture, *Coup d'oeil sur l'agro-alimentaire au Quebec*, 1979-80, Quebec: Quebec Department of Agriculture, Economics Branch, 1981, p.210.

Table IV.14 AVERAGE WEEKLY EXPENDITURE FOR CHICKEN PER FAMILY FOR SELECTED CITIES IN 1982, DOLLARS

City	St-Johns	Halifax	Quebec	Montreal	Ottawa	Toronto
Expenditure	3.58	2.08	2.97	2.29	2.19	2.67

City	Winnipeg	Regina	Edmonton	Vanc.	Vict.
Expenditure	1.82	1.37	1.81	2.72	2.51

Source:Government of British Columbia, *Agricultural Statistics Profile 1984*, Ministry of Agriculture and Food, November 1985 p.123.

chicken than families in the East (Ontario, Quebec) and in

the West (British Columbia). Differences in retail prices for chicken could be one reason for explaining the differences in consumption although studies of the price elasticity of demand for chicken suggest that consumption is not very responsive to price changes.

Table IV.15 gives estimates from Dawson and Dau of regional broiler production-consumption ratios for 1971 to 1980. Most of the provinces produce less chicken than they consume except for Ontario (which produces almost the same quantity as is consumed) and Quebec (which produces much more than is consumed). This series does not necessarily suggest that the quota is best allocated among provinces.

Processing Industries

Table IV.16 indicates the location of the processing industries in Canada and Table IV.17 indicates the location of chicken production in Canada.

There seems to be a correlation between the location of the processing and production sectors of the chicken industry, except for the province of Manitoba. Manitoba has a relatively large number of processing industries compared to its production. This situation being caused by the fact that there are mainly small plants distributed all over the province.

In conclusion from the section above, extra-provincial trade is limited under the regulated marketing system that applies for chicken, but in some provinces it is possible to

Table IV.15 REGIONAL BROILER PRODUCTION-CONSUMPTION RATIOS FOR 1971 TO 1980

Prov.	B.C.	Alta.	Sask.	Man.	West.	Ont.	Que.	Mar.	East	Canada
1971	0.78	0.75	0.47	0.78	0.72	0.99	1.40	0.56	1.09	0.99
1972	0.83	0.79	0.48	0.85	0.77	0.96	1.43	0.62	1.10	1.01
1973	0.87	0.80	0.55	0.90	0.81	0.95	1.40	0.71	1.09	1.01
1974	0.83	0.74	0.51	0.86	0.76	0.98	1.40	0.71	1.10	1.01
1975	0.79	0.80	0.57	0.89	0.78	0.97	1.22	0.78	1.04	0.97
1976	0.82	0.81	0.56	0.92	0.80	0.97	1.25	0.80	1.05	0.98
1977	0.74	0.81	0.46	0.82	0.73	0.93	1.20	0.74	1.00	0.93
1978	0.82	0.87	0.42	0.86	0.78	0.95	1.17	0.72	1.00	0.94
1979	0.90	0.88	0.49	0.83	0.82	0.97	1.16	0.73	1.01	0.96
1980	0.83	0.88	0.47	0.90	0.80	0.95	1.21	0.75	1.01	0.96

Source:Dawson, Dau and Associates, *Impact of Government Programs on the Regional Location of Meat Production in Canada*, Prepared for Dr. H.M. Horner and the Minister of Economic Development p.147.

Table IV.16 BROILER CHICKEN PROCESSORS IN 1979-1980-1981

Year	BC	Alta	Sask	Man	Ont	Que	NB	NS	PEI	Nfld
	Number of Establishment									
1979	8	5	2	10	34	23	2	2	1	2
1980	9	5	2	10	34	23	2	2	1	2
1981	9	5	2	10	35	22	2	2	1	2

Source: Statistics Canada, Catalogue 32-227, Annual.

Table IV.17 CHICKEN PRODUCTION IN CANADA FOR 1979, 1980, 1981 AND 1982

Year	1979	1980	1981	1982
		000's Pounds'		
B.C.	89463	79802	89206	80157
Sask.	17883	16770	18236	17826
Man.	32613	33640	34389	33298
Ont.	288886	276684	294680	288218
P.Q.	278236	275208	257781	264506
N.B.	21968	21729	23177	21191
N.S.	32320	31085	30884	31003
Nfld.	7645	8181	8855	10426

'Eviscerated weight.
Source:Touche and Ross, *A Study to Update Provincial Cost of Production Statements for Live Chicken in Canada*, Ottawa: Canadian Egg Marketing Agency, Vol. 1, 1984, p.14.

transfer quota between areas. Permitting the quota to be transferred from areas might generate some economies of location. Feed costs accounted for 58.50% of the total Canadian broiler chicken costs of production in 1984. There is a difference of 11.70 ¢/kg. based on eviscerated weight (see on p. 79) between Quebec and Ontario attributed to the feed component. This suggests that there might be some advantages in having the production sectors located closer to the feed production regions but this might be neutralized by added marketing costs. In the location of consumption section we have seen that the per capita consumption of chicken is greater in Quebec compared to Alberta. It is also outlined that families in the Prairies spent less money on chicken than families in the East or West. Finally, the production-consumption ratios do not necessarily suggest that the quota is best allocated among provinces. In summary, regarding the location of the processing

industries, most of the processing plants are located close to production (except in Manitoba).

Potential Losses due to Lag in Technological Advance

There may be relationships between the quota transfer system, concentration of the industry and the rate of technical change. There are two major schools of thought and debate over innovation and concentration in industry. One school argues that market power and economies of scale are necessary conditions for innovation and the other one argues that competition between firms creates pressure for innovation. As we have seen in the section about economies of size, a freely traded quota transfer system may lead to fewer lower-cost operations with increased holdings of quota. It is also noted by Alston (1981) that output controls likely retard the adoption of new technologies which would otherwise expand output, since adoption of such technologies may require larger-size farms to be effective.[10] A stronger position than this might be taken following Schumpeter who argued that "monopoly power is to some degree both the effect of innovation and invention".[11] If these claims have validity they could be the source of another cost incurred because of the non-transferable quota transfer system. Tying quota to assets might result in a larger number of firms with smaller holdings of quota.

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[10] Alston (1981), *op. cit*, p.191.
[11] Green, C., *Canadian Industrial Organization and Policy*, Montreal: Mc Graw-Hill Ryerson, 1980, p.39.

However, it might also be agreed that stability and reduction of risk that has accompagnied regulation through supply-managing quota programs may encourage some forms of technical change.

B. Quota Effects

Capitalization of Quota Values

> "Since quota rights are required to gain access to the higher prices and revenues that the program yields, these rights can be expected to acquire a capital value."[1]

The present value of the quota can be related to a stream of annual benefits over time. Following Grubel and Schwindt (1977), the relevant expression is:

$$PV = [Y_1/(1+r_1)]+[Y_2/(1+r_2)^2]+\ldots+[Y_n/(1+r_n)^n]+[k/(1+r_n)^n]$$

PV= Present Value
Y= Annual Net Benefit
r= Discount Rate
k= Resale Value of the Quota
n= Period of Time over which benefits acrue

If we assume the resale value of the quota to be zero, the annual net receipts to be equal and an infinite time horizon, the present value formula is:

$$PV = Y/r$$

This permits the evaluation of the annual benefits to quota holders and consequent calculations of the social cost of quota transfer programs from quota values. Alternatively,

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[1] Veeman (1982), *op.cit.*, p.24.

rental values of the quota give a direct measure of the annual benefit.

Table IV.18 indicates raw'''[2] broiler chicken quota values for four selected provinces in Canada. Quota values in Quebec in 1983 were estimated to be about $9.25 per bird. The quota rental value at that time was from $.08 to $.12 per bird.'''[3] These are also believed to be current values.'''[4]

Some of the boards ignore quota having a value. In the provinces where quota is tied to assets, the value of quota is obscured by the asset value. Negotiablility makes the quota value more obvious. British Columbia is the province with the highest apparent quota values, followed by Ontario. Alberta and Quebec are the provinces with the lowest apparent quota values. It has been suggested that negotiability of quotas has led British Columbia to have the highest quota values.

Using the present value formula and information on quota values, we demonstrate the general order of higher costs from the supply management schemes. Quota values in 1980 were $12.00 in British Columbia and $5.00 in Alberta for a quota unit (per bird expressed annually) (see Table IV.18). For the purpose of this exercise, we assume a discount rate of 12% for 1980. Multiplying the quota value

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'''[2]not corrected for transfer taxes or levies or for other institutional distortions in the economy such as income tax.
'''[3] Dawson, Dau and Associates, Part III, *op. cit.*, p.85.
'''[4]Interview with M. Claude Gauthier of the Quebec Federation of Poultry Producers.

Table IV.18 RAW BROILER CHICKEN QUOTA VALUES FOR FOUR SELECTED PROVINCES IN CANADA, DOLLARS PER BIRD

Year	B.C.[1]	Alberta	Ontario[2]	Quebec[3]
1967	2.75	N/A	N/A	N/A
1968	2.75	N/A	0.25	N/A
1969	3.00	N/A	0.50	N/A
1970	3.00	N/A	0.75	N/A
1971	3.30	N/A	0.80	N/A
1972	3.50	N/A	1.30	N/A
1973	4.00	N/A	3.00	N/A
1974	4.25	N/A	4.00	N/A
1975	4.50	N/A	5.00	1.59
1976	5.00	N/A	N/A	N/A
1977	5.00-6.00	N/A	N/A	3.18
1978	10.00	N/A	N/A	3.63
1979	12.00[4]	10.00[4]	N/A	5.91
1980[5]	12.00[5]	5.00[5]	9.50[4]	5.73[3]
1981	N/A	N/A	N/A	N/A
1982	N/A	N/A	N/A	7.05
1983	14.00	N/A	N/A	9.25
1984	N/A	N/A	N/A	9.25[4]
1985	N/A	N/A	N/A	9.25[4]

Sources:
[1]Government of British Columbia, *Primary Agriculture in British Columbia: Broiler Production*, Select Standing Committee on Agriculture, 1977, p.9.
[2]Lane, S.H., M.A. McGregor, *Quotas and Quota Values*, Universtity of Guelph, 1979, p.20.
[3]Quebec Department of Agriculture, *Coup d'oeil sur l'agro-alimentaire au Quebec*, 1979-80, Quebec: Quebec Department of Agriculture, Economics Branch, 1981.
[4]Veeman, M.M., T.S., *Marketing Boards in Canada*, Canada West Foundation, 1980, p. 55.
[5]Arcus, P.L., *Broiler and Eggs*, Technical Report No. E/13, Ottawa: Economic Council of Canada, 1981, p.49.
[4]Interview with M. Claude Gauthier of the Quebec Federation of Poultry Producers.

by the discount rate gives a value of $1.44 per quota unit which is an estimate of the net benefit per year from a quota unit in British Columbia. If we assume that there are 4.7 cycles per year in British Columbia, the quota benefits are $.306 per bird ($1.44÷4.7). Further, assuming that in British Columbia the average liveweight for chicken is 4 pounds and that the eviscerated weight is equal to 75% of liveweight, we find the added net receipts per pounds of chicken meat arising from the existence of the program to be 10.21¢/lb.

Using the same method for Alberta with 5.8 cycles per year and 3.5 lbs. per live chicken we can derive the net quota owning benefits to quota holders to be 3.93¢ per pound of chicken meat. Assuming the production and revenue patterns to be similar in British Columbia and Alberta, we deduce that there is an extra cost of 6.28 ¢/lb. to producers in Alberta due to an inefficient quota transfer system.

C. Summary of Effects

Table IV.19 gives a summary of potential losses from different quota transfer systems.

Table IV.19 INDICATIONS OF LOSSES FROM DIFFERENT QUOTA TRANSFER SYSTEMS

Losses	Negotiable Quota System	Non-Negotiable Quota System
Economies of Size (Labour)	0	$13.60 per thousand birds[1]
(Capital)	0	N/A
Economies of Location (Feed)	0	11.70 ¢ per kg. or $1029.00 per thousand Birds[2]
Technical Advance	N/A	N/A
Added Costs of Quota Restrictions	0	6.28 ¢ per lb. or $251.00 per thousand Birds[3]

[1] Based on previous material.
[2] Based on previous material, (assuming chickens of 4 pounds liveweight).
[3] Based on previous material, (assuming chickens of 4 pounds liveweight).

In the above sections we have seen that the additional labour hours (based on a comparison of inferred labour inputs in Ontario and Quebec) may give an extra labour cost of $13.604 per thousand birds due to the smaller average

size which appears in large part to be due to limitations on the quota transfer system. It was outlined earlier that there is a difference of $1029.00 per thousand birds in feed costs between Quebec and Ontario. The fact that feed costs accounted for a large proportion of the overall costs of production makes the impact of the quota transfer system on the location of the production an important criteria for decision. Using quota values for British Columbia and Alberta, we demonstrated that there may be an extra cost of $251.00 per thousand birds to producers in Alberta due to a restrictive quota transfer system.

D. Re-evaluation of the Social Cost of Monopoly Power Including a Resulting Upward Supply Shift From Increased Costs

Most economists agree that the exertion of monopoly power results in an upward shift of the costs of the firms in the industry. Veeman (1982) noted that increase in cost structures of the firms in the industry can result in a leftward parallel or pivotal shift of the supply function. In their 1981 study Borcherding and Dorosh assumed that deregulation of the egg industry results in a downward shift of the supply function, more or less in a parallel fashion, by two-thirds the amount of the per unit cost savings at the equilibrium quantity.'''[3] Such costs mainly arise from lack of negotiability of quotas. Without negotiability the net

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'''[3]Borcherding and Dorosh (1981), *op. cit.*, p.42.

social cost or social loss is not limited anymore to area abc in Figure II.2 but there are extra costs which were represented as area abcde in Figure II.3.

V. Summary, Conclusion and Recommendations

A. Summary and Conclusions

This study was an analysis of the quota allocation and transfer system used by the major Canadian supply management marketing boards. Marketing boards have been a part of Canada's agriculture for many years. There are actually 135 marketing boards covering most of Canadian agricultural products. The two main objectives of marketing boards are to enhance producers revenues or returns and to reduce "boom and bust" cycles from the markets for agricultural products. This can be pursued by supply management. Supply management is the way in which quantity produced is restricted in order to obtain more stable and higher prices and revenue. Restrictions on quantity supplied to the market are achieved through a quota system. It is well known that these systems have costs. These costs include:

1. loss in allocative efficiency
2. X-inefficiency losses
3. losses which can be due to restrictions on quota transfer
4. losses due to lags in technological progress

This thesis was an attempt to identify and to measure some of the costs that may be associated with the restrictions on quota transfer system. In conventional analysis the effects of quotas are estimated by comparing free market equilibrium with the situation which applies

under quotas. It has been argued that if quotas are freely negotiable the social cost of monopoly power is very small and if quotas are not allowed to be traded the social cost may rise considerably. Two popular approaches used in estimating the effects of supply management have been: "to use the value of quotas as a measure of rent and doing price cost comparisons between two different areas".

Arcus (1981) estimated the economic impact of regulation in the broiler and egg sectors in Canada using quota values. Arcus gave an estimate of the total valuation of quota for provinces where quota is freely traded (an aggregate of $394 millions) and for provinces where quota is tied to assets ($47 millions). Arcus also estimated the total cost of regulation in the broiler sector to be about $77 millions per year.

Alston (1981) wrote a theoretical review of the effects of non-transferable quotas on the supply function. He distinguished two kind of quota systems: closed (non-transferable) quota system and open (transferable) quota systems. Because quotas are not allowed to be traded, this engenders additional costs and an upward shift of the supply function due to non-achievement of economies of size and location.

Borcherding and Dorosh (1981) measured the regulatory costs of the British Columbia Egg Marketing Board doing a cost comparison of British Columbia and Washington farms. They provided estimates of the costs of quota negotiability

restrictions in British Columbia at $1.8 million per year causing an upward shift of the supply function.

Veeman (1982) estimated the social cost of supply-restricting marketing boards for Canadian chicken, egg and turkey commodities. She concluded that increased costs arise due to restrictions on quota transfer. Those additional costs may result in a parallel or pivotal shift of the supply function.

Alston (1985) wrote a study about the consequences of deregulation in the Victorian Egg Industry. He compared the situation for egg production and marketing in two Australian states, one which quotas are freely transferable (New South Wales) and another one in which quotas are not transferable (Victoria). He found an extra cost of 13 cents per dozen due to limitations on quota transfer.

There are four main types of quota transfer systems. The fully controlled quota system is characterized by the fact that the board exercises complete control over the allocation and transfer of all quota. The system where quotas are attached to assets which is characterized by the fact that quota is tied to specific farm assets such as land and building and is transferable only to purchasers who acquire the physical assets to which it has been allocated. Under the limited negotiability quota system quota can be sold separately from assets, but is not allowed to be traded between areas. The completely negotiable quota transfer system allows quota to be sold separately from other assets,

and to be traded among areas.

The next part of this study was a review of the different possible quota allocation, quota transfer and quota price establishment systems used by the various Canadian provincial boards. Although the regulations for fluid milk were reviewed, most of the study concentrates on poultry products especially broiler chicken. There is usually no maximum on quota size in the fluid milk commodity. All the provinces have freely traded quota transfer systems for the fluid milk commodity except Prince Edward Island and Saskatchewan. In Manitoba, New Brunswick, Prince Edward Island and Saskatchewan it is possible to transfer fluid milk quotas between areas. All the provinces have maximum quota sizes for the broiler chicken commodity. The provinces with freely traded quota transfer systems are: British Columbia, New Brunswick, Nova Scotia and Quebec. The other provinces have systems where quotas are tied to assets. It is usually not possible to transfer quotas between areas for the broiler chicken commodity, except in British Columbia.

In the analysis some of the aspects of quota allocation and transfer systems have been outlined to see if they are sources of inefficiencies. The first section on efficiency losses includes: economies of size and location losses and potential losses due to lag in technological advance. Costs on broiler chicken farms in Canada decrease as the size of farm increases up to the size of 85,000 birds per cycle.

Some studies show that economies of scale mostly arise from the degree of utilization of labour and capital. The section on efficiency losses included a more detailed analysis of the labour and capital components. It was also showed that all the provinces have a maximum quota size for broiler chicken. This may be specified in an attempt by boards to protect more family farms and prevent concentration in the industry. An analysis of the size distribution of farms in the broiler industry in four selected provinces showed that farms are, on average, larger in Quebec than in Ontario. This appears to reflect the fact that in Ontario the quota is tied to assets and in Quebec the quota is freely traded. The fact that farms are smaller in Ontario may cause an extra labour cost of $13.604 per thousand birds. An analysis of the capital component concluded that much capital is unnecessarily invested in quota and land, so the costs of producing broiler are further increased.

The section on economies of location included an analysis of the feed costs and location of the processing industries in Canada. The analysis on the feed component showed that there is a difference of 11.70¢/kg. in feed cost between Quebec and Ontario. This might suggest that there might be some advantages in having the production sectors located closer to the feed production regions but this might be neutralized by added marketing costs. The analysis on the processing industries concluded that there might be some advantages to having the processing industries located close

to the production sector.

No estimates of cost for the potential losses due to lags in technological advance have been made, but it was noted that there may be some relationship between the concentration of the industry and the rate of technical change. There are two major schools of thought and debate over innovation and concentration in the industry. One school argues that market power and economies of scale are necessary conditions for innovation and the other one argues that competition between firms creates pressure for innovation.

The last section on quota values included a discussion about the effects of the capitalization of quota values. It was inferred that lower quota values in Alberta (compared to British Columbia) may reflect additional costs of 6.28 ¢/lb. for Alberta producers.

B. Discussion and Recommendations

Most people accept the fact marketing boards are long established and that they will remain. So, economists and politicians have to find ways of improving boards and thus make them more efficient. It was expected that major improvement might come from reform of the quota transfer system. We have seen that there are two different approaches used in estimating the effects of supply management; one uses the value of quotas as a measure of rent and the other involves doing price and cost comparisons between two

different areas. Cost estimates depend greatly on the assumptions. We have also seen that most of the boards have specific goals; the quota transfer program is usually closely related to those goals. There seems to be a particular concern about concentration of the industry, protection of the family farm and increasing quota values.

A concern of the public and some boards relates to increasing quota values. Free transfer quota systems lead to higher apparent quota values compared to quota transfer systems which tie quotas to assets. Some of the boards tried to cure this problem by assigning no value to quota; other boards have tied the quota to assets, so the value is obscured by the asset value. In Dawson and Dau (1983) two measures are suggested to reduce quota values: the first is to reduce the price of the product and the second is to levy a tax on quota transfer. Reducing the price of the commodity would result in increased consumer demand and lower quota values.'''' To levy a tax on quota transfer could result in reduced quota transfers since fewer producers would be willing to sell or buy quota.

Tying quota to assets and applying maximum quota sizes are different methods which may have been used to protect the family farm and to prevent concentration in the industry. However, economic analysis shows that smaller farms are sources of inefficiencies. Freely traded quota systems may lead to greater concentration in the industry

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''''Dawson, Dau and Associates, Part I and II (1983), *op. cit.*, p.157.

but by doing this it can also lead to the accomplishment of some economies of size. There seems to be a trade-off between efficiency and protection of numbers of family farms. The boards are likely to adopt strategies which will make them fulfil their goals. One alternative strategy could be to allow quota to be traded freely and set maximum quota sizes at levels which would help maintain numbers of family farms and yet encourage economies of size.

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